

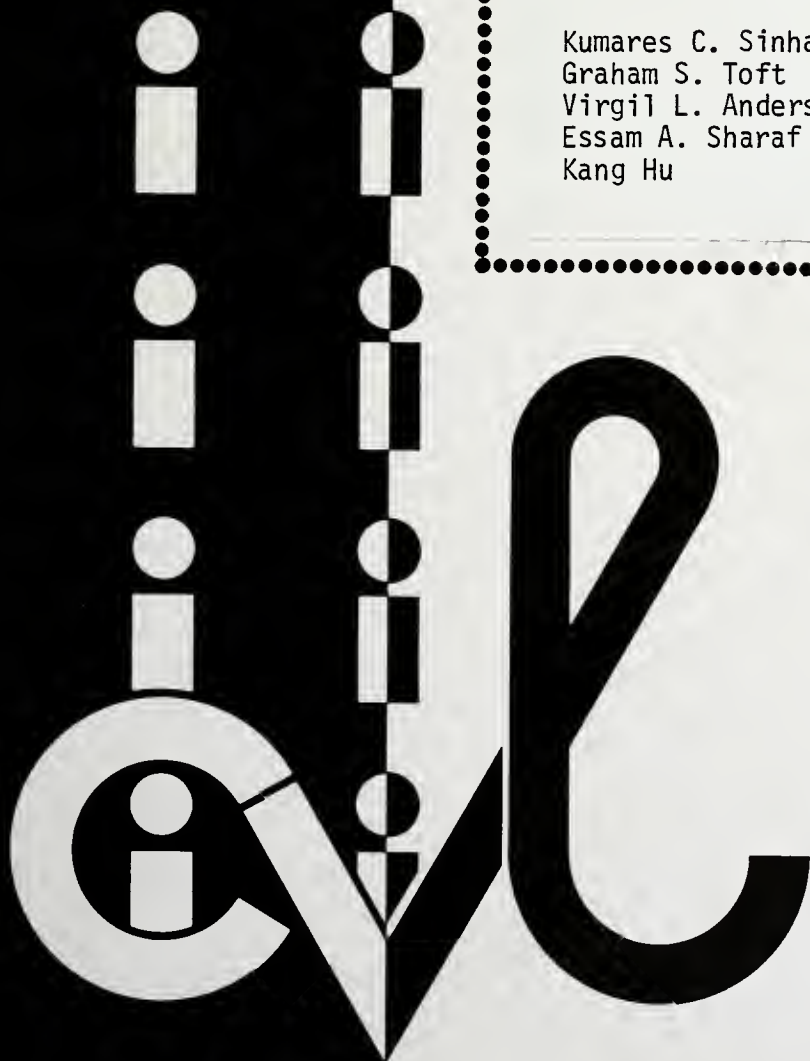
SCHOOL OF  
CIVIL ENGINEERING  
  
INDIANA  
DEPARTMENT OF HIGHWAYS

JOINT HIGHWAY RESEARCH PROJECT

JHRP-83-15

INDIANA STATE HIGHWAY RECIPROCITY  
STUDY: FINAL REPORT

Kumares C. Sinha  
Graham S. Toft  
Virgil L. Anderson  
Essam A. Sharaf  
Kang Hu



PURDUE UNIVERSITY

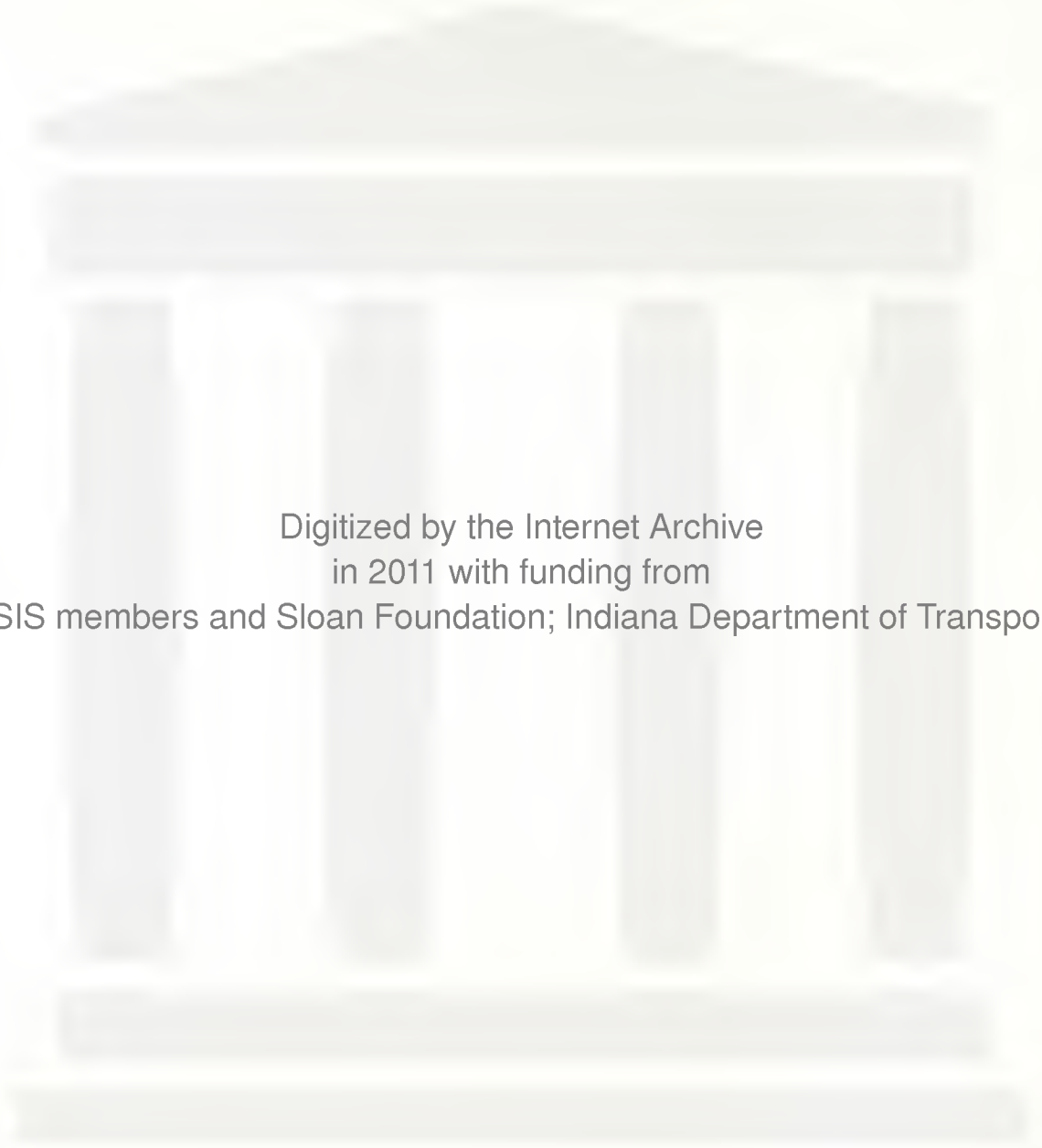


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FINAL REPORT

INDIANA STATE HIGHWAY RECIPROCITY STUDY

To: H.L. Michael, Director  
Joint Highway Research Project

October 31, 1983

From: K.C. Sinha, Research Engineer  
Joint Highway Research Project

Project: C-36-54QQ  
File: 3-3-43

Please find enclosed Final Report on the JHRP study titled, "Indiana State Highway Reciprocity Study." The study mandated by H.E.A. 1006 of the 103rd Indiana General Assembly, was conducted by Professor K.C. Sinha with the assistance of Professors G.S. Toft and V.L. Anderson and Messrs. Essam A. Sharaf, Kang Hu and Eugene R. Ferguson.

The report evaluates the fiscal impact of Indiana's joining the International Registration Plan (IRP). The analysis involved both the revenue impact and the impact on trucking industry.

The major finding of the study is that there would be little revenue gain if Indiana joined IRP without a truck tax restructuring, and possibly a loss if only Indiana miles are counted in base-mile ratio computation.

The study results have been presented to the Joint Legislative Study Committee on Highway Funding on November 16, 1983. The report is submitted to the Board as fulfillment of the objectives of the study.

Respectfully submitted,



K.C. Sinha  
Research Engineer

KCS/bjm

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Indiana State Highway Reciprocity Study

Final Report

by

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Prepared as part of an Investigation  
Conducted by

Joint Highway Research Project  
Engineering Experiment Station  
Purdue University

in cooperation with the  
Indiana Department of Highways

Purdue University  
West Lafayette, Indiana  
October 31, 1983





## FOREWORD

This study was mandated by House Enrolled Act 1006 of the 3rd Indiana General Assembly. It was conducted by the Joint Highway Research Project of Purdue University in cooperation with the Indiana Department of Highways.

The principal investigator of the study was Professor Kumares C. Sinha who prepared this report with the assistance of the following individuals in the areas indicated: Professor Graham S. Toft - role of trucking industry in Indiana economy; Professor Virgil L. Anderson - statistical sampling; and Messrs. Essam A. Sharaf and Kang Hu - coding and analysis of the data. In addition, Mr. Eugene R. Ferguson assisted in gathering background information.

The study would not have been possible without the help of the following persons: Mr. Fred Wise of the Indiana State Board of Tax Commissioners; Ms. Louise Jones, formerly of the Indiana Department of Highways and now of the Consulting Engineers of Indiana; Ms. Diane Graham of the American Association of Motor Vehicle Administrators; Messrs. Martin Miller, Steve Holsclaw, Tom Siersdale, Herb Baumeister and Bryan Langdon of the Indiana Bureau of Motor Vehicles; Mr. Michael Jacks of the Indiana Public Service Commission; and Messrs. George Cline and Paul Berebitsky of the Indiana Motor Truck Association.



Typing of the manuscript was done by Mrs. Bonnie Misner, Miss Rita Wolf, Mrs. Kay Nelson and Mrs. Pat Degner without whose critical assistance the report could not have been completed in time.

The authors especially want to acknowledge the guidance of Mr. Gene K. Hallock, Director of the Indiana Department of Highways and Professor Harold L. Michael, Director of the Joint Highway Research Project for their invaluable advice during the course of the study.

The authors are, however, solely responsible for the content of this report.



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## STATE HIGHWAY RECIPROCITY STUDY

EXECUTIVE SUMMARYPurpose

This study was mandated by House Enrolled Act 1006. Its purpose is to articulate the pros and cons of Indiana joining the International Registration Plan (IRP).

IRP

Over the years reciprocity among the states with respect to the use of highways by out-of-state trucks has become a complicated set of arrangements. There has been a proliferation of agreements and requirements on motor carriers for registering their fleet of vehicles. Truckers and shippers point out that the system has become complex and cumbersome. This leads to time delays, increased paperwork and regulation costs and an imbalance between jurisdiction of road use and jurisdiction of fee payment.

IRP is an attempt to simplify and unify interstate truck registration. Under IRP carriers pay registration fees through their base jurisdiction to jurisdictions in which they travel according to the percent fleet miles traveled and the fee schedule operative in each jurisdiction.

Study Methodology

In order to assess the fiscal impact of Indiana's joining IRP, the net effect of two revenue streams was considered.



First, an estimate was made of how much of the current registration revenue collected by Indiana from its resident interstate carriers with vehicles of 26,000 lb. or more will be lost due to IRP. Then the expected registration revenue from carriers based in the current IRP member jurisdictions who operate in Indiana was estimated.

The estimation of fees related to the resident carriers was done on the basis of information gathered through a random sample survey of the carriers. A statistically sampled mail survey was sent to 3,170 of Indiana's home-based carriers, stratified by fleet size. A 29.3% response rate provided statistically reliable information on truck type and mileage of Indiana operators.

In order to estimate incoming revenue from out-of-state carriers under the IRP, data from several state records were used. These primarily included the motor fuel use tax records and indefinite situs tax records. In addition, the IRP recap data for nine states from the American Association of Motor Vehicle Administrators and data from several other jurisdictions were used.

#### Fiscal Impact

If the present registration fee level is maintained, under IRP with base-mile option 1 (Indiana miles plus non-IRP miles in base-mile ratio) for 1982, Indiana would retain, on average, about \$16.24 million while losing about \$9.06 million from Indiana based carriers. Additional revenue collected from out-of-



state carriers is estimated to be \$11.51 million. These figures, based on vehicles of 26,000 lb. and above, would result in net average revenue gain of about \$2.45 million. The maximum and minimum revenue gains would be \$2.7 and \$2.2 million, respectively.

If base-mile option 2 (only Indiana miles in base-mile ratio) is exercised, Indiana would retain, on average, about \$12.25 million while losing \$13.04 million from its home-based carriers. Additional revenue collected from out-of-state carriers would be the same as above. This option would thus mean a net average revenue loss of about \$1.5 million. The maximum and minimum values of the loss can be expected to be \$1.7 million and \$1.3 million, respectively.

A 25% increase in Indiana registration fee for all power units of 26,000 lb. and above will provide additional revenue of between \$8.469 and \$9.092 million. In case Indiana joins IRP and the registration fee are raised by 25%, the expected additional revenue on the basis of base-mile option 1 will be between \$11.234 and \$12.460 million, and this range for base-mile option 2 will be \$6.315 and \$7.427 million. Any additional increase in registration fees will result in a proportional increase in additional revenues.

Indiana's participation in IRP under any level of registration fee will add to the cost of registration for Indiana based truckers. However, if registration fee is increased by 25% or



more, it is beneficial for the Indiana carriers for Indiana to participate in the IRP, provided the mileage ratios include only Indiana miles.

### Key Issues

Indiana ranks ninth among the top ten states by truck registration. Because of its geography, it is in an ideal position for the location of trucking firms and warehouses. Indiana highways also support a considerable amount of through traffic.

The key issues concerning IRP entry are:

1. Indiana's Truck Tax Structure: Indiana's present truck tax structure is not conducive to taking full advantage of IRP entry. Indiana has a sizable business personal property tax with a low registration fee. Registration fee is apportioned under IRP, but not the property tax.
2. Indiana's Competition: A decision to change truck registration fee structure should be taken with the goal of improving Indiana's highway revenue as well as of positioning the state with an attractive business climate for trucking and warehousing.
3. Inclusion of Non-IRP Miles: How certain options are exercised within a bid for IRP entry will determine how well Indiana takes advantage of the new arrangements. In particular, would Indiana include or exclude non-IRP miles in its





base-mile calculations (referred to as base-mile option 1 and 2 respectively)?

### Conclusions

- A decision to enter IRP should not be considered in isolation from a restructuring of the truck taxes.
- There would be little benefit if Indiana joined IRP without a truck tax restructuring, and possibly a loss if only Indiana miles are counted in the calculation of base-mile ratios (base-mile option 2).
- A 25% increase in registration fees would not affect Indiana's truck tax burden ranking relative to other midwestern states. However, it should be recognized that a change in truck registration fee may trigger realignments in the resident trucking industry and some shift and relocation of individual firms can be expected.
- If non-IRP miles are included in Indiana's base-mile calculation (base-mile option 1), Indiana will probably remain at a comparative disadvantage to Illinois as a place to register trucks and possibly expand business.
- In addition to revenue impact, IRP participation has several other effects. First, with IRP the productivity of trucking industry may increase, because the trucking firms would no longer have to register separately in member states for either interstate or intrastate operations. Indiana



trucking firms- would also benefit through increased flexibility of routing and scheduling. Furthermore, the IRP will make the enforcement of trucking laws much easier.

- If Indiana registration fees were raised by about 25% for power units of 26,000 lb and above the resulting increase in revenue to Indiana together with the other factors noted above would appear to make the joining of IRP a desirable option. Under this condition, consideration should be given to include only Indiana miles in base-mile ratio computation (base-mile option 2). This may provide financial relief to Indiana truckers and retain Indiana's competitiveness with nearby states.



## CHAPTER 1

### INTRODUCTION

There is nationwide concern over the payment of proper taxes and fees by some highway users. In many states, this concern concentrates on motor carriers registered outside of these states. Because these out-of-state carriers use the highway system in a given state without paying their fair share of the highway costs, the taxation burden falls on the other highway users.

An effective method of taxation is necessary so that the out-of-state carriers can be made to pay appropriate charges for using Indiana highways. The solution to this state highway revenue problem is not just a simple increase of the fuel tax or to increase truck registration fees. Instead the taxation structure and the method of collection should be such that all users bear their cost responsibility in an equitable manner.

Over the years reciprocity among the states with respect to the use of highways by out-of-state vehicles has become a complex set of arrangements. There has been a proliferation of agreements and requirements on motor carriers for registering their fleet of vehicles. In the early seventies a new agreement in the form of the International Registration Plan (IRP) was formed by the American Association of Motor Vehicle Administrators.

Section 2 of House Enrolled Act 1567 of the 103rd Indiana General Assembly reads as follows:



- (a) The reciprocity commission on behalf of the state may enter into reciprocal agreements providing for the registration of vehicles on an apportionment or allocation basis with the proper authority of any state, any commonwealth, the District of Columbia, a state or province of a foreign country, or a territory or possession of either the United States or of a foreign country.
- (b) To implement this chapter, the commission may enter into and become a member of the International Registration Plan, or such other designation that may be given to a reciprocity plan developed by the American Association of Motor Vehicle Administrators.
- (c) The reciprocity commission may adopt rules under IC 4-22-2 to carry out and enforce the provisions of the International Registration Plan or any other agreement entered into under this chapter.
- (d) If the reciprocity commission enters into the International Registration Plan or into any other agreement under this chapter, and if the provisions set forth in the plan or other agreements are different from provisions prescribed by law, then the agreement provisions prevail.
- (e) This chapter constitutes complete authority for the registration of vehicles, including the registration of fleet vehicles, upon an apportionment or allocation basis without reference to or application of any other statutes of this state.

House Enrolled Act 1006 authorized the Indiana Department of Highways to undertake a state highway reciprocity study pursuant to House Enrolled Act 1567.

The study was conducted by the Joint Highway Research Project of Purdue University and the Indiana Department of Highways. The objectives of the study involved an assessment of the consequences of Indiana's participating in a reciprocity agreement with other jurisdictions through the International Registration Plan (IRP). The primary consequences include fiscal impact with respect to change in truck registration revenue and impact on the





trucking industry of Indiana.

Current Status of Reciprocity Agreements Between  
Indiana and Other States

For interstate movement, current motor carrier registration reciprocity agreements between Indiana and other states may include multistate, bilateral or conditional agreements. For intrastate movement, reciprocity between Indiana and other jurisdictions is primarily bilateral. In Table 1 is shown a summary of the reciprocity agreements for the exemption of license plate registration fees between Indiana and other jurisdictions.

Multi-State Agreement - The Multistate Reciprocity Agreement grants members reciprocity subject to exceptions included by the participating states. A motor carrier based in a member state may operate interstate through another member state and be exempted from registration and payment of all fees and taxes, subject to whatever exceptions might apply to a particular state.

Bilateral Agreement - Indiana has bilateral reciprocity agreements with 20 other jurisdictions. These agreements are not uniform but vary from full reciprocity to license plate only.

Conditional Agreement - The final type of agreement that Indiana has is the unwritten conditional agreement. It is a statutory requirement that, in lieu of a written agreement, Indiana reciprocity must be reactive. That means that Indiana's policy towards the truckers of another state must be the same, or nearly



Table 1

Reciprocity Agreements Between Indiana and Other Jurisdictions  
Granted to Non-Residents for the Exemption from License Plate Registration Fees

<u>For Interstate Movement</u>		<u>For Intrastate Movement</u>	
<u>Jurisdiction of Residence</u>	<u>Written Agreement</u>	<u>Unwritten Agreement</u>	<u>Written Agreement</u>
AB-Alberta		Conditional-TP	
AK-Alaska		Conditional-TP	
AL-Alabama	62*Multistate		77 Bilateral
AR-Arkansas	46 Bilateral		
AZ-Arizona	67 Bilateral-TP		
BC-British Columbia		Conditional-TP	
CA-California		Conditional	
CO-Colorado		Conditional	
CT-Connect.		69 Conditional	
DC-District of Columbia		Conditional	
DE-Delaware	46 Bilateral		
FL-Florida	62 Multistate		77 Bilateral
GA-Georgia	62 Multistate		76 Bilateral
IA-Iowa	40 Bilateral		
ID-Idaho	80 Bilateral RP		
IL-Illinois		Conditional-RP	76 Bilateral-Trail's & Semitrailers
IN-Indiana	Not Applicable		
KS-Kansas	70 Bilateral		
KY-Kentucky	62 Multistate		76 Bilateral-Trail's & Semitrailers
LA-Louisiana	62 Multistate		
MA-Massachus.		Conditional	
MB-Manitoba		Conditional	
MD-Maryland	62 Multistate		
ME-Maine		Conditional	
MI-Michigan	62 Multistate		76 Bilateral
MN-Minnesota		Conditional	76 Bilateral-Trail's & Semitrailers
MO-Missouri	62 Multistate		76 Bilateral-Trail's & Semitrailers
MS-Miss.	62 Multistate		
MT-Montana	47 Bilateral		
MX-Mexico		Conditional	
NB-New Bruns.		Conditional	
NC-North Car.	62 Multistate		
ND-North Dak.	81 Multistate		
NE-Nebraska	40 Bilateral		
NF-New Found.	80 Bilateral		
NH-New Hamp.		Conditional	
NJ-New Jersey	62 Multistate		
NM-New Mexico	68 Bilateral-TP		
NS-Nova Scotia		Conditional	
NT-Northwest Territory		Conditional	
NV-Nevada		Conditional-TP	
NY-New York		Conditional	
OH-Ohio		Conditional	
OK-Oklahoma	46 Bilateral		
ON-Ontario	78 Bilateral-TP		76 Conditional for Trail's & Semi- Trailers



Table 1. (Continued)

<u>For Interstate Movement</u>			<u>For Intrastate Movement</u>	
<u>Jurisdiction of Residence</u>	<u>Written Agreement</u>	<u>Unwritten Agreement</u>	<u>Written Agreement</u>	<u>Unwritten Agreement</u>
OR-Oregon	43 Bilateral			
PA-Penn.	64 Bilateral			
PQ-Quebec		Conditional-TP		
RI-Rhode Is.		Conditional		
SC-South Car.	62 Multistate		77 Bilateral	
SD-South Dak.	63 Bilateral			
SK-Saskatach.		Conditional		
TN-Tennessee	62 Multistate		79 Bilateral-Trail's & Semitrailers	
TX-Texas	47 Bilateral			
UT-Utah	43 Bilateral-TP			
VA-Virginia	62 Multistate			
VT-Vermont		Conditional		
WA-Washington	49 Bilateral			
WI-Wisconsin	66 Bilateral-RP			
WV-W. Virginia	62 Multistate			
WY-Wyoming	76 Bilateral			

\*The number indicates the effective year of the agreement.

TP - Trip Permit charged Indiana vehicles

RP - Reciprocity I.D. Permit required for Indiana Vehicles



so, as the policy of the other state towards Indiana truckers.

It should be pointed out that in some cases Indiana carriers need to obtain trip permits or reciprocity permits while carriers from the other jurisdictions operate in Indiana without paying any such fees.

Regulatory Fees - In addition to the reciprocity agreements involving registration fees, agreements between Indiana and other jurisdictions also involve fees for vehicle identification stamps charged to regulated carriers (common and contract carriers). Upon payment of these fees identification stamps are issued that verify that the carrier has proper authority to operate in a particular state. The reciprocity agreements involving there fees would not be affected should Indiana join the IRP.

Administrative Process - In Indiana, reciprocity policy involving all out-of-state motor carrier agreements is set by the Indiana Reciprocity Commission. Its members are the Governor, the head of the Bureau of Motor Vehicles, the head of the Indiana Department of Highways, the head of the Public Service Commission, the head of the Department of Revenue, the head of the Indiana State Police, a representative of the bus industry, and a representative of the trucking industry. The Commission meets periodically to consider changes in Indiana's reciprocity policy. At the meetings proposed changes in Indiana policy are examined to determine what overall effect they would have on the public and private sectors. Also, the Commission considers whether





retaliatory policy changes are required due to the actions of another state.

Background Information on  
International Registration Plan

The International Registration Plan (IRP) is a reciprocal agreement between participating state and provincial jurisdictions. The stated purpose of the IRP is "...to promote and encourage the fullest possible use of the highway system... [4]. Towards this end, it establishes arrangements whereby truck registration fees collected by member jurisdictions are shared equitably. To achieve equity the revenues derived from registration fees are divided among member jurisdictions on the basis of fleet miles operated in those jurisdictions. Under the IRP, registration fees are collected in a carrier's base state. The base state is that state in which the firm's main office is located or sometimes the state in which it operates the most. After paying the fees, the carrier receives one license plate from its base state and one cab card listing all the jurisdictions in which the carrier is registered. This system allows the carrier to operate in all jurisdictions in which it is registered as both an inter- and intrastate carrier. The base states are responsible for the collection and distribution of fees from carriers to jurisdictions.

There is an important additional effect of the IRP. It allows implementation of the concept of one registration plate



for one vehicle. Without IRP an interstate carrier must install a backing plate showing decals or permits from the jurisdictions in which it operates or carry multiple plates or cab cards. The IRP thus provides an opportunity for improved productivity for trucking industry, as trucking firms could meet all of their registration obligations by going through proper registration in Indiana. Firms would no longer have to register separately in member states.

A related benefit is the increased flexibility of routing and scheduling trucking firms would realize. For example, an Indiana trucking firm operating out-of-state in a member state could combine its interstate operation with some intrastate operations in other jurisdictions. This would result in more efficient trips.

At the same time, the IRP has the effect of making enforcement of trucking laws much easier. Any enforcement official will know that the cab card must be kept in the cab at all times and may request to see it any time. Most of the information needed for enforcement purposes will be listed on the card. Information included is vehicle type, fees paid, special restrictions, and any other information required by that jurisdiction. Currently, this information is not always immediately available.

There are currently 29 member jurisdictions participating in the IRP. Table 2 is a roster of member jurisdictions. Figure 1 is a map showing the geographical relationships between member



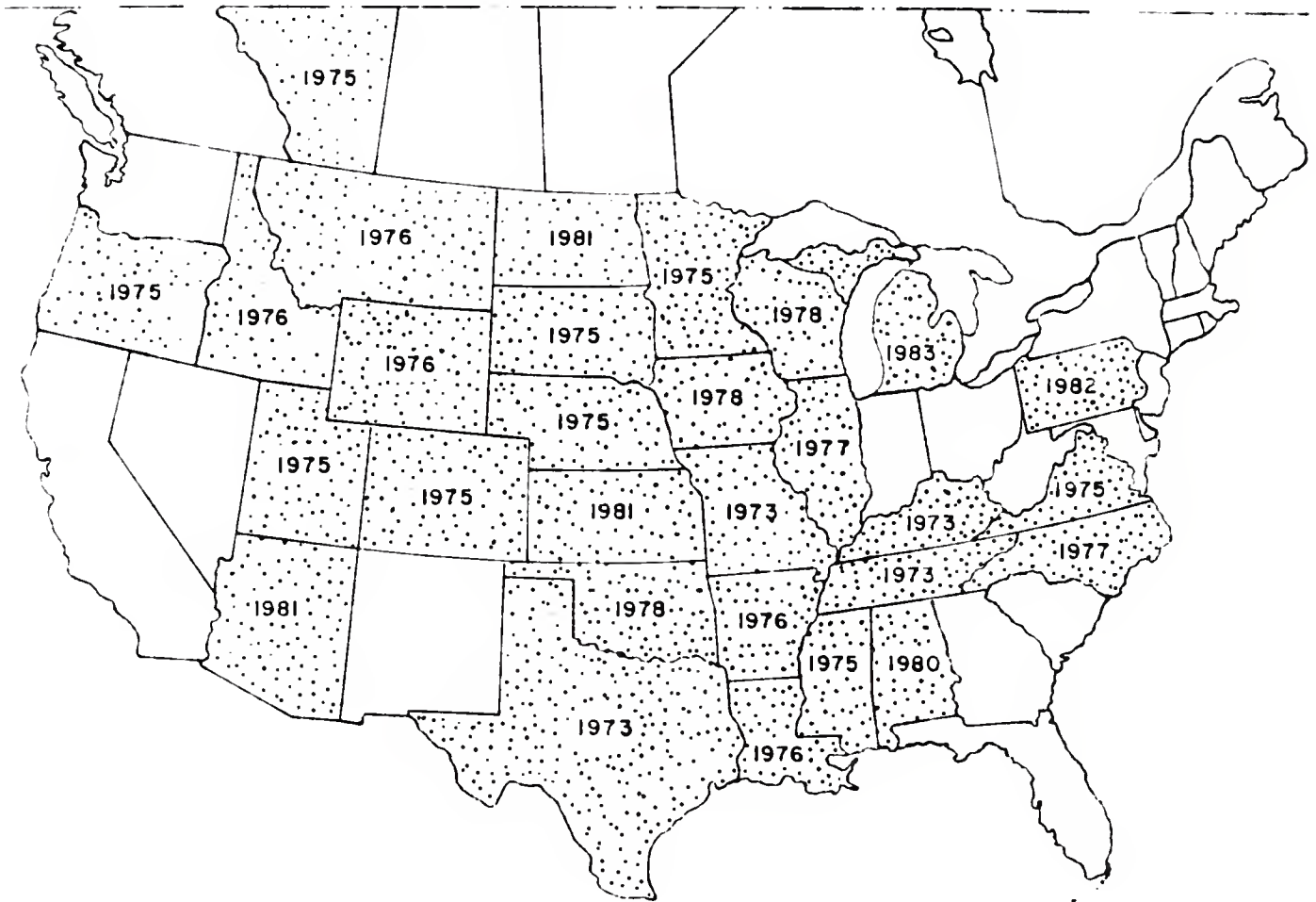
Table 2. Roster of IRP Member Jurisdictions

Jurisdiction	Year of Entry
Kentucky	1973
Tennessee	1973
Missouri	1973
Texas	1973
Minnesota	1975
Oregon	1975
Nebraska	1975
Utah	1975
Colorado	1975
Alberta	1975
South Dakota	1975
Mississippi	1975
Virginia	1975
Wyoming	1976
Montana	1976
Arkansas	1976
Louisiana	1976
Idaho	1976
Illinois	1977
North Carolina	1977
Oklahoma	1978
Wisconsin	1978
Iowa	1978
Alabama	1980
Arizona	1981
North Dakota	1981
Kansas	1981
Pennsylvania	1982
Michigan	1983



Figure 1

Geographical Distribution of the IRP Member Jurisdictions







jurisdictions. It should be noted that there are also several states that are in the process of joining the IRP including Florida and Ohio.

In the following paragraphs are presented some of the current provisions of the IRP. Much of this information has been obtained from Reference 3.

#### Calculation of Fees

Under the IRP, each base state is responsible for collecting fees from its carriers. The method of calculating those fees is as follows:

- 1) Divide each state's base miles by total miles generated in the preceeding year.
- 2) Determine the total fees required under the laws of each jurisdiction for full registration of each vehicle.
- 3) Multiply the sum obtained from 2) by the quotient obtained from 1).

Most jurisdictions compute base miles as the sum of in-jurisdiction miles and miles in non-IRP jurisdictions. Only nine jurisdictions including Illinois consider in-state miles as base miles.

It should be noted that the IRP does not waive any fees or taxes levied by any member state except those specifically mentioned in the Plan. "All other fees and taxes shall be paid to each jurisdiction in accordance with the laws thereof" [3].



### Application for Proportional Registration

The first step in applying for proportional registration is to file a uniform application with the Commissioner of the base jurisdiction. In the event the applicant's base jurisdiction changes between applications, re-registration procedures will be established by the Commissioners of the two jurisdictions involved. It is up to the base jurisdiction to determine the date by which applications must be filed. Further, the base jurisdiction is allowed to register proportionally trailers, semi-trailers, and auxiliary axles if a filing for such an exception is allowed. Finally, the application must contain the number of power units (i.e. bus, truck, truck-tractor, road tractor, or tractor), number of trailers, semi-trailers, and auxiliary axles.

After receiving its proportional fees, the base jurisdiction must issue the plates and cab cards. The cab cards shall list the jurisdictions where the vehicles are proportionally registered, the weight registered, and any other information necessary in each jurisdiction. The base jurisdiction may withhold plates and cards until it receives evidence of payment due other jurisdictions. The base jurisdiction must notify the other jurisdictions listed in the application that it has been filed. Failure to pay fees or erroneous issuance of plates and cards are grounds for cancellation and revocation of registration.

### Registration of Apportionable Vehicles

After completion of the application process and full payment of fees, vehicles so registered shall be considered fully



registered in all jurisdictions listed in the application. Registration of owner-operator vehicles is on the basis of the registrant's mileage figures for the preceeding year.

It may be that additional vehicles are acquired by the registrant after the beginning of the registration year and added to the registered fleet. In that case registration shall be calculated by applying the mileage percentage used in the original application to a proportion of the regular registration fees equal to the proportion of the registration year remaining. Otherwise, filing and processing of additional vehicles are to be done in the same way as the original application.

#### Withdrawal and Replacement of Fleet Vehicles

If a vehicle, proportionally registered, is withdrawn from the fleet during its period of registration, the registrant must notify the base jurisdiction Commissioner. The Commissioner then will require the registrant to return the cab card and plates. The unused portion of fees paid may then be refunded by each jurisdiction where it is permitted by statute.

If the registrant is replacing a vehicle for one withdrawn and the replacement is in the same weight category, then a supplemental application must be filed with the base jurisdiction. The base jurisdiction, applying the same procedure outlined above for registration, may then issue a new cab card and transfer the plates. If the replacement vehicle is of greater weight or requires larger fees, the registrant must file for re-



registration as if it were an additional vehicle.

#### New Operations

Applications for proportional registration require the mileage data in all jurisdictions for the preceeding year. If no operations were conducted in a given jurisdiction or with such vehicles during the preceeding year, then the application should include a full statement of the proposed method of operation and estimates of annual mileage in each jurisdiction. The base jurisdiction Commissioner may adjust the estimate if he feels it is not correct.

#### Registration of Owner-Operator Vehicles

Proportional registration for owner-operators who lease their vehicles to motor carriers will be done in the following manner. The motor carrier is responsible for registering the vehicle and allocation of fees will be based on the records of the carrier. The registration, however, is in both the owner-operator's name and the carrier's. The plates and cab cards become the property of the motor carrier. Finally, each jurisdiction must provide a means of registration for owner-operators not operating as a lessor to a motor carrier.

#### Trip Leasing

The lessee, with one exception (Household Goods Carriers), is responsible for the proper registration of the vehicle. In addition, if equipment is leased from one apportioned operator to





another, the lessor must report the additional proportional miles traveled. All other requirements and restrictions apply.

#### Registration of Rental Vehicles

Rental fleets will be given full inter- and intrastate privileges subject to the following conditions. First, the vehicles to be registered must be identifiable as a part of the fleet. Second, the fleet owner must have received approval from the jurisdiction to apportion the fleet. Third, proper registration is completed.

The procedure for proper vehicle registration varies with vehicle type. Trucks and truck-tractors must be registered according to the procedures described above. Rental passenger cars, trailers, and semi-trailers all use the following procedure. Divide the gross revenue received the preceding year for the use of each unit in the jurisdiction by the total gross revenues received the preceding year for unit use in all jurisdictions. The resulting percentage shall be applied to the number of such units in the fleet.

Those renting utility trailers, not exceeding 6,000 lbs. gross vehicle weight (GVW), in a jurisdiction shall register a number of trailers equal to the average number of such trailers rented in or driven through the jurisdiction the preceeding year.

One-way trucks of less than 26,000 lbs. GVW, part of an identifiable one-way fleet, may be registered by following the



mileage factor procedure already outlined. All qualified trucks of such a fleet may then operate both inter- and intrastate in all jurisdictions.

#### Trip Permit Registration

A trip permit may be issued instead of either full or proportional registration. A person wanting a trip permit must apply to the Commissioner and pay the required fee. The permit must be carried in the cab of the permitted vehicle. The permits are in effect for a limited time. During that time the permitted vehicle may engage in inter- and intrastate commerce in the jurisdiction. Trip permits may not be issued so as to evade or avoid the intent of the IRP. Finally, member jurisdictions may provide a system of issuing trip permits for other jurisdictions. The issuing jurisdiction would then collect the fees for the permit, issue it to the registrant, and forward the fees to the permitted jurisdiction.

#### Preservation of Records and Audit

An applicant accepted for proportional registration is required to keep the records on which registration was based for at least three years. Such records must be made available to the Commissioner on request for audit during normal business hours. If the registrant fails to make those records requested available within thirty days after a written demand, then the Commissioner may impose an assessment of liability based on the Commissioner's best available data.



If the registrant's records are not located in or made available in the base jurisdiction, then the base jurisdiction may require the registrant to reimburse the jurisdiction for per diem and travel expenses incurred in the audit. When the audit is complete, the Commissioner must notify all jurisdictions where the registrant is registered of the accuracy of the registrant's records. Any miscalculation is to be reported to all affected jurisdictions. Upon audit, the Commissioner shall make an assessment for any deficiency found to be due. Any additional jurisdiction-mandated assessments shall be made according to the statutes of each jurisdiction involved with the audit.

#### Entry and Withdrawal

Any jurisdiction may enter into this agreement by enacting the prescribed adopting resolution and sending it to the American Association of Motor Vehicle Administrators (AAMVA). Such a resolution is subject to approval and endorsement by all member jurisdictions. The agreement will remain in full force until it is cancelled or revoked by the proper officials of a member jurisdiction following thirty days written notice. Cancellation by one member will not affect the agreement between any other jurisdiction.

#### Exceptions

Each member jurisdiction is allowed to submit a list of exceptions. The exceptions will then be made a part of the appendix of the agreement pending approval by each member



jurisdiction. A jurisdiction may amend its exceptions upon approval of all other members. The amendment will be made a part of the agreement in the next registration year. Exceptions may be withdrawn or cancelled by notifying AAMVA. The action becomes effective upon notification of all member jurisdictions. Withdrawal or cancellation of exceptions does not require member approval. No exceptions are permitted for the following concepts: single registration plates; single registration cab card; and the ability of a proportionally registered vehicle to engage in inter- and intrastate operations.

#### Other Agreements

The IRP agreement would supersede any other reciprocal agreement between member jurisdictions covering any matters contained in the agreement. The agreement will have no effect on agreements between members and non-members.

#### Administration

The AAMVA is the official administrative body charged with responsibility for the duties required to administer the agreement. The AAMVA must act as repository for the agreement, notify members of changes in agreement status, provide interpretations of questions or policy procedures relevant to the agreement based on a three-fourths consensus of member jurisdictions.





## CHAPTER 2

### FISCAL IMPACT ANALYSIS

In order to assess the registration revenue impact for Indiana, it is necessary to consider two revenue sources. First, an estimate needs to be made of how much of the current registration fees collected by Indiana from its resident interstate carriers with vehicles of 26,000 lb. or more weight will be lost due to Indiana's joining IRP. Then, the expected registration revenue from carriers based in the current IRP member jurisdictions who operate in Indiana, will have to be estimated. As IRP is an apportioned system of registration, Indiana based carriers will no longer pay 100% of the fee to Indiana. Indiana will receive only the percentage of that fee according to the number of miles traveled in Indiana.

The estimation of fees related to the resident carriers was done on the basis of information gathered through a random sample survey of the carriers. The fees expected from out-of-state carriers were estimated directly from the already available related data instead of a random survey.

The revenue impact analysis requires the following pieces of information for each carrier based in Indiana as well as in other IRP jurisdictions and operating in Indiana: annual miles operated in Indiana and other jurisdictions, total fleet miles operated, number of trucks and tractors of 26,000 lb. or more weight traveling in and out of Indiana, and registration fee schedule of



all involved jurisdictions.

In this chapter a discussion is presented on the procedure of estimation of the relevant revenue amounts and the results of the data analysis. The analysis also included an estimation of the additional tax burden of the resident carriers if Indiana joined IRP. In addition, the fiscal impact of any increase in registration fee for 26,000 lb or more vehicles was assessed.

#### Sampling of Indiana Based Carriers

To estimate potential revenues that would be generated from home-based carriers if Indiana joined IRP, a mail-back questionnaire survey was used. Questionnaires were mailed to Indiana registered carriers for information about number and weights of commercial vehicles and miles traveled in individual jurisdictions including Indiana. As it is impractical to contact all home-based carriers, a sampling approach was applied to identify a group of carriers that represent the characteristics of the Indiana based carriers. In order to obtain reliable data by sampling, it is important to: (1) select an appropriately sized sample, (2) have a reasonable questionnaire return rate, and (3) apply proper statistical method to project the characteristics of the population.

The American Association of Motor Vehicle Administrators (AAMVA) has developed an IRP impact study methodology for testing in Connecticut, Maryland and West Virginia [1]. This methodology was considered as a broad guideline for this study. However, the



specific approach used in the sampling procedure and subsequent statistical analysis differed significantly from the AAMVA methodology.

### Sampling Procedure

The sampling procedure included four major steps: (1) selection of a sample of Indiana-based carriers, (2) preparation of the questionnaire, (3) follow-up procedure, and (4) treatment of incomplete or inaccurate responses. The four steps are discussed as follows.

#### Selection of Sample

In order to select an appropriate sample of the carriers, a list of all vehicles registered in Indiana in 1982 was obtained from the Indiana Bureau of Motor Vehicles (BMV). From this list the addresses of the carriers with commercial vehicles were extracted along with the size of the vehicle fleet. A major problem in this process arose from the fact that the BMV file recorded each individual vehicle rather than each carrier. Considerable effort was made to identify the vehicles by carriers so that a list of carriers and their fleet size and geographic location could be developed.

The AAMVA method suggested a simple random sampling out of the whole population be applied for the survey. However, there exist significant differences among carriers in their operation as represented by fleet sizes and the registration revenues col-



lected per carrier vary considerably. Consequently, it was decided not to use a simple random sampling. Instead, a stratified random sampling [6] was followed for this study. The purpose of stratification is to divide the heterogeneous population of carriers into a number of near - homogeneous subpopulation groups in order to provide a more close representation of the characteristics of the carrier population.

Initially, it was proposed to stratify the population by the geographic location of the carriers in Indiana. However, this proposal was rejected after considering the fact that the possible effect of various locations on registration revenue would be less significant than the effect of fleet size of the carriers. As a result, the sampling was done based on the number of vehicles registered by a carrier. The list of vehicles provided by the BMV included all trucks, tractors, trailers and semi-trailers. For the purpose of sampling, the carriers were classified into nine groups (strata) with the fleet size ranging from 163 and more down to 1. For the first four groups, 100% of the carriers were included in the sample. As the number of carriers increased with the decreasing fleet size, less percentages of carriers were needed to obtain the necessary sample sizes. In all, there were 3261 carriers sampled from the population.

#### Preparation of the Questionnaire

It is necessary to have a properly designed questionnaire in order to obtain reliable data. The questionnaire was prepared





with input from the Indiana Motor Truck Association and it was designed to assess not only the fiscal impact for the State of Indiana, but also the impact on the Indiana trucking industry. Questions included information on the number of vehicles by weight group, type of operation and mileage traveled by jurisdiction. In addition, carriers were asked about the possible impact of IRP on the firm's operation and what registration reciprocity agreement the carrier favors for Indiana. The carriers were encouraged to provide open comments. A copy of the questionnaire is presented in Appendix A.

One dilemma the researchers faced was that the carriers were requested to provide the information for analysis while they are the ones who will be affected the most by IRP membership. How to avoid any unjustified or biased response was a subtle issue. Effort was made to assure the carriers that the study would be conducted as objectively as possible and it was in the best interest of the carriers to complete the questionnaire as correctly as possible. As stated in the cover letter included in Appendix A, the study was an impact study and the impacts of reciprocity policies on Indiana revenue as well as on trucking firms would be taken into consideration.

Each questionnaire was labeled by a 5-digit number for carrier identification. A stamped self-addressed envelope was enclosed along with each questionnaire and mailed out on July 22, 1983.



### Follow-up Procedure

The goal was set to have approximately 30% total return rate from the sample. After four weeks from the initial mailing date, there were 708 questionnaires returned. In addition, a total of 91 questionnaires could not be delivered because of change of address. Hence, 243 more responses were required to achieve the goal of 30% return rate of the total 3170 delivered questionnaires. A next wave of questionnaires was mailed out to receive additional responses on August 25, 1983.

Assuming the return rate for the second wave questionnaires would be about 30%, the number of carriers needed to be chosen for follow-up then would be at least 810. The carriers for the follow-up survey in which the second wave of questionnaires was mailed out were selected randomly from the non-respondents of the initial survey. The selection of the carriers in each category followed the same stratified sampling procedure as used in the first survey and the relative proportion of carriers in each category was kept the same. As a result, 919 carriers who did not respond to the first survey were contacted again. A total of 230 responses were received and 27 questionnaires were found to be non-deliverables.

The follow-up survey material included a second cover letter, replacement of a questionnaire and a stamped, self-addressed return envelope. The second cover letter is presented in Appendix B.



### Treatment of Incomplete or Inaccurate Responses

All the returned questionnaires were checked for completeness and accuracy of the information provided. First was to check if the number of power units (Question 2) matches with the summation of all the vehicles by weight group (Question 4a). Secondly, the total mileage reported must be correct. Third was to look at whether the mileage traveled in Indiana was missing, which was found not so uncommon a problem.

Once a discrepancy was found in the returned questionnaire, a telephone call was made to resolve data problems. A good portion of the incomplete or inaccurate responses was cleared up by direct phone call. Some of the carriers replied over the telephone that they needed further checking of their data. Therefore, another letter together with the incomplete questionnaire was sent back to these carriers to complete the information. However, even after the telephone calls and special treatment, 40 responses remained incomplete or inaccurate and were not included in the data analysis.

### Summary of Survey Responses

Out of 3170 questionnaires delivered, 930 carriers responded with a return rate of 29.3%. A summary of the sampling and survey responses is presented in Table 3. A breakdown of the responses by type of carrier is given in Table 4. A total of 469 respondents were classified as interstate carriers, indicating



Table 3. Summary of Sampling and Responses by Carrier Group

Carrier Group	Number of Carriers in Group	Fleet Size	1st Wave				2nd Wave		
			Sampling Percentage	Number of Questionnaires Mailed	Number of Respondents	Return Rate	Number of Questionnaires Mailed	Number of Respondents	Return Rate
1	51	163 and more	100%	51	14	27%	35	10	28%
2	121	70 - 161	100%	121	37	30%	34	14	41%
3	309	30 - 69	100%	309	71	23%	100	17	17%
4	698	15 - 29	100%	699	164	23%	100	27	27%
5	813	10 - 14	30%	272	79	29%	50	22	44%
6	1791	6 - 9	20%	359	69	19%	100	21	21%
7	4567	3 - 5	15%	762	142	19%	200	35	18%
8	4951	2	10%	465	69	15%	150	40	27%
9	19301	1	1%	193	23	12%	100	22	22%
Subtotal	-	-	-	3261	668	-	869	208	-
Unidentifiable	-	-	-	-	9	-	-	5	-
Incomplete	-	-	-	-	32	-	-	8	-
Total	-	-	-	3261	709	-	-	221	-





Table 4. Summary of Types of Respondents

	Inter-State Carriers	Intra-State Carriers	Non-Applicable Carriers	Incomplete	Total
1st Wave	382	202	98	32	709
2nd Wave	87	44	77	8	221
Total	469	246	175	40	930



that they operate not only in Indiana but also in other states. A total of 246 respondents reported that they operate only in Indiana and were classified as intrastate carriers. There are also carriers operating no IRP-eligible vehicles and the number of these carriers in the sample return was 175. The rest of the responses (40) were incomplete. However, there were several responses where the identification label was torn off and thus they could not be identified as to their sample carrier group. Consequently, these responses along with the incomplete responses were excluded from further analysis. Therefore, the total number of carrier responses used in the analysis was 876 which constituted about 28% return rate. Since the responses from the first wave were very similar to the responses from the second wave, this return rate was deemed highly satisfactory for reliable statistical analysis.

A review of the carrier responses indicated a wide variation in the fleet size information among carrier groups 7, 8 and 9 causing a cross-over of categories between these three groups. Therefore, it was necessary to combine carrier groups 7, 8 and 9 into one group with fleet size of 5 or less vehicles. All subsequent calculations were then done on the basis of resulting seven carrier groups, as shown in Table 3.



Estimation of Registration Fees  
Related to Indiana Based Carriers

The procedure adopted in this study is different from that suggested by AAMVA in two major aspects. First, the AAMVA method is based on simple random sampling, while in this study a stratified random sampling was applied. Estimates of fees were developed separately for each carrier group and was later summed to obtain a final estimation of registration revenues. Secondly, the AAMVA method only provides the mean values of estimated revenues without considering the possible variance in the estimation. Since it is important to set up a confidence interval with variance on the mean value, this study incorporated an analysis of variance.

In order to determine the registration fees related to Indiana based carriers, the sample data were first summarized and appropriate expansions were then done to transform the sample results to population estimates. In the following paragraphs the steps followed are discussed:

1. Carrier Response Data Summary

The data items considered in the analysis included the following information:

- i. Carrier identification number;
- ii. Type of operation (private, rental, or for hire);



- iii. Total number of power units;
- iv. If the carrier operates only intrastate in Indiana or both intra-and interstate.
- v. For those carriers that operate interstate, the data included:
  - a. Weight distribution of trucks and tractors operating interstate;
  - b. Miles traveled by the fleet in each jurisdiction.

It should be pointed out here that the questionnaire asked to report all vehicles 16,000 lb. or more registered weight. However, the analysis was conducted only for vehicles 26,000 lb. or more weight. All interstate vehicles of 26,000 lb. or more are required to be included in an IRP agreement, while the inclusion of vehicles of lesser weight is optional.

2. Computation of Number of Interstate Vehicles and Carriers in the Sample

From the carrier response data, all interstate vehicles of 26,000 lb. or more weight were counted for each carrier group.

$$NIV_i = \sum_{j=3}^{15} nIV_{ij}$$

$NIV_i$  = Number of interstate vehicles of 26,000 lb. or more weight in carrier group i;





$j = 3, \dots, 15$  represent weight classes of  
26,000 lb. or more,

$nIV_{ij}$  = Number of interstate vehicles of weight  
class  $j$  in carrier group  $i$ .

For those carriers who operate exclusively in Indiana, power units with 16,000 lb. or more reported in Q. 2 were counted as intrastate vehicles. For some carriers, the number of total power units reported in Q. 2 was more than the total number of all interstate vehicles listed in Q. 4a. The difference of these two numbers was counted as intrastate vehicles.

The total intrastate vehicles included 16,000 lb. or more vehicles. However, as the vehicles considered in the analysis were 26,000 lb. or more, it was necessary to estimate the number of intrastate vehicles of 26,000 lb. or more weight. As the sample responses did not indicate weight class of intrastate vehicles, the actual registration data for 1982 from the BMV were used to estimate the proportion of power units in 16,000 lb. and 20,000 lb. From the Cash Audit System list of the BMV it was found that 23.6% of the power units with 16,000 lb. or more weight were in these two categories. Thus, the sample count of intrastate vehicles of 16,000 lb. or more weight was adjusted to obtain intrastate vehicles of 26,000 lb. or more weight, by multiplying this count with 0.764.

The number of total vehicles considered in the subsequent analysis was the sum of interstate vehicles of 26,000 lb. or more weight and intrastate vehicles of 26,000 lb. or more weight.



The total number of carriers in a sample group includes intrastate carriers, interstate carriers as well as those carriers who did not have any vehicles of 16,000 lb. or more weight.

The total number of sample interstate vehicles of 26,000 or more weight in each carrier group was then distributed among all weight classes and the resulting data were stored in a two-dimensional array by carrier group and by vehicle weight class. A summary of the computations for sample vehicles and carriers is presented in Table 5.

### 3. Calculation of Fees for Sample Carriers

For each sample group, calculations for the following five types of fees were done for each carrier within the group and for each vehicle weight class with 26,000 lb or more registered weight.

- i. 100% Indiana Registration Fee
- ii. Fee Retained in Indiana due to IRP
- iii. Fee Lost by Indiana due to IRP
- iv. Fee Paid by Indiana Carriers to Other IRP Jurisdictions
- v. Additional Registration Fee Paid by Indiana Carriers due to IRP

The 100% of Indiana fee is the amount that Indiana would collect from a carrier under the existing registration arrangement. This amount was calculated as shown below:



Table 5. Summary of Sample Vehicles and Carriers Included in the Analysis.

Group Number	Number of Interstate Vehicles (26K or more)	Number of Interstate Carriers	Number of Intrastate Vehicles (26K or more)	Number of Intrastate Carriers	Number of Non-Applicable Carriers	Total Number of Vehicles (26K or more)	Total Number of Carriers	% of Interstate Vehicles	Average Number of Vehicles per Carrier
1	7455	22	237	1	1	7692	24	.9692	320.50
2	2569	41	143	5	5	2712	51	.9473	53.18
3	2010	67	364	18	3	2374	88	.8467	26.98
4	1387	126	567	51	14	1954	191	.7098	10.23
5	287	58	226	29	14	513	101	.5595	5.08
6	197	41	141	41	8	338	90	.5828	3.76
7	188	103	220	98	130	408	331	.4608	1.23
Total	14093	458	1890	243	175	15983	876	0.8817	18.25



$$\begin{aligned} \text{100\% Indiana Fee from a Carrier} &= \sum_j [\text{Number of Trucks of Weight Class } j * \text{Indiana Registration Fee for Truck Weight Class } j] + \\ &\quad [\text{Number of Tractors of Weight Class } j * \text{Indiana Registration Fee for Tractor Weight Class } j] \end{aligned}$$

There are 13 vehicle weight classes representing 26,000 lb or more registered weight groups.

The amount of fee to be retained in Indiana due to IRP was calculated for each carrier, as shown below.

$$\text{Fee Retained in Indiana} = 100\% \text{ Indiana Fee} * \text{Base Mile Ratio}$$

Two separate computations of Base Mile Ratio were done:

$$\text{Base-Mile Ratio 1} = \frac{\text{Indiana Miles} + \text{Miles in Non-IRP Jurisdictions}}{\text{Miles in All Jurisdictions}}$$

$$\text{Base-Mile Ratio 2} = \frac{\text{Indiana Miles}}{\text{Miles in All Jurisdictions}}$$

The amount of fee from a carrier lost by Indiana due to IRP is simply the difference of the 100% of Indiana fee and the fee retained in Indiana after joining IRP.

The amount of fee to be paid by an Indiana carrier to other IRP jurisdictions was calculated, as shown below:

$$\begin{aligned} \text{Fee to be Paid to Other IRP Jurisdictions} &= \sum_{i=1}^{29} \sum_{j=3}^{15} \text{MR}_i * \text{RATE}_{ij} * \text{NPU}_j \end{aligned}$$

where,  $\text{MR}_i$  = Ratio of miles in  $i^{\text{th}}$  IRP jurisdiction and total miles by the fleet;





$RATE_{ij}$  = Average registration fee of the  $j^{th}$  weight class in the  $i^{th}$  IRP jurisdiction;

$NPU_j$  = Number of power units in  $j^{th}$  weight class.

Next, the additional registration fee to be paid by an Indiana carrier due to Indiana's joining IRP was calculated:

Additional Fee for a Carrier =  $[ \text{Fee Retained in Indiana} + \text{Fee to be paid to IRP Jurisdictions} ] - 100\% \text{ Indiana Registration Fee}$

After calculating fees for individual carriers, the resulting fees were summed up for the number of sample carriers in a group to provide total fees by carrier group and by vehicle weight class. This information was then stored in five matrices each representing a type of fee computation mentioned earlier.

#### 4. Calculation of Average and Variance of Fees Per Vehicle

By dividing the total fees calculated in Step 3 by number of interstate vehicles computed in Step 2, sample average fees per interstate vehicle can be obtained for each weight class of 26,000 lb or more within each carrier group.

The sample variance was calculated as shown below:

$$S_i^2 = \frac{\sum_{k=1}^{n_i} (F_{ik} - AVF_i)^2}{n_i - 1}$$

where,  $F_{ik}$  = Fee (\$/veh.) for the  $k^{th}$  carrier in group  $i$ ;

$AVF_i$  = Average sample fee per vehicle for carrier group  $i$ .

$n_i$  = Number of carriers in group  $i$ .



The computation of sample average fee per vehicle and variance was done for each of the five types of fees considered in Step 3.

5. Estimation of Number of Vehicles in Population

In Step 2, the vehicle calculations were based on sample data. The information from these calculations was then expanded to estimate the number of vehicles of 26,000 lb. or more weight in population. The computations involved in this step are mentioned below.

a. Estimation of Number of Vehicles in Population of Carrier Groups

By multiplying total sample vehicles per carrier in a carrier group, calculated in Step 2, with actual number of carriers in that group, total vehicles of 26,000 lb. or more weight in the group can be estimated, as shown below:

$$NVP_i = NC_i * VPC_i$$

where,

$NVP_i$  = Number of vehicles in of 26,000 lb. or more weight in population of the  $i^{th}$  carrier group;

$NC_i$  = Actual number of carriers in population of the  $i^{th}$  carrier group (this information was obtained by summarizing the carriers' list supplied by the BMV);

$VPC_i$  = Number of vehicles of 26,000 lb. or more weight per carrier in the  $i^{th}$  group calculated from the sample data.



b. Estimation of Number of Interstate Vehicles in Population of Carrier Groups

These estimates were obtained by multiplying the sample percent of interstate vehicles from Step 2 with the estimated number of vehicles in population from Step 5a, appropriately adjusted as shown below:

$$NIVP_i = NVP_i * PC_i * \frac{\text{Actual Number of Registered Vehicles}}{\sum_{i=1}^7 NVP_i}$$

where,  $NIVP_i$  = Population of interstate vehicles of 26,000 lb. or more weight in carrier group i;

$NVP_i$  = Estimated in Step 5a;

$PC_i$  = Sample percent of interstate vehicles in total vehicles of 26,000 lb. or more in carrier group i, calculated in Step 2.

The actual number of vehicles of 26,000 lb or more weight registered in Indiana was obtained from the Cash Audit System list of the Indiana Bureau of Motor Vehicles and this number was 76,875 in 1982. The estimates of population vehicles of 26,000 lb. or more weight and the corresponding number of interstate vehicles in each carrier group are shown in Table 6.

c. Estimation of Interstate Vehicles in Population of Vehicle Weight Classes

The estimates of population interstate vehicles obtained from Step 5b were distributed among each vehicle weight class. These estimates were stored in a two-dimensional array by carrier



Table 6. Estimated Number of Vehicles in Population

<u>Group Number</u>	<u>Estimated Number of Population Vehicles 26<sup>k</sup> or More</u>	<u>% of Interstate Vehicles</u>	<u>Estimated Number of Interstate Vehicles of 26<sup>k</sup> or More</u>
1	14787	.9692	14289
2	5866	.9473	.5540
3	7603	.8467	.6418
4	6523	.7098	.4618
5	3774	.5595	.2105
6	6150	.5828	.3574
7	32172	.4608	14777
TOTAL	76875	.6676	51321





group and by vehicle-weight class.

6. Estimation of Expected Fees

In this step, the sample estimates of fees were expanded to estimate expected fees if Indiana joined the IRP, as described below.

a. Estimated Average Fees by Carrier Group - The sample estimates of average fees per vehicle from Step 4 were multiplied by the estimated population of interstate vehicles in each vehicle weight class within each carrier group, obtained from Step 5c, to determine total estimated fees by weight class and by carrier group. The estimates by vehicle weight class and by carrier group were then summed over all vehicle weight classes to compute fees for each carrier group, and these in turn were summed over all carrier groups to estimate the total expected fees. The computations were done for each of the five types of fees mentioned in Step 3.

In Table 7 are presented the estimates of registration fees for Indiana based carriers using mileage ratios with the summation of Indiana miles and non-IRP miles as base miles (Base Mile Ratio 1). The estimate of 100% registration fees collected from all vehicles of 26,000 lb. or more (\$35.1 million) is close to the actual amount collected in Indiana from those vehicles in 1982 (\$34.6 million). This close agreement indicates that the overall estimates are reasonable.



Table 7. Estimated Registration Fees of Indiana Based Carriers for Interstate Vehicles of 26,000 lb. or More Using Base-Mile Ratio 1 \*

Group Number	Total 100% Fee (Interstate Vehicles of 26K or More)	Total Revenue Retained by Indiana due to IRP	Total Revenue Lost by Indiana due to IRP	Total Fee Paid by Carriers to Other IRP Jurisdictions	Total Additional Fee Paid by Carriers due to IRP
1	8460934	4937966	3522969	5854826	2331856
2	3331365	1878861	1452504	2374496	921992
3	3675827	2345357	1330469	2291219	960749
4	2240071	1547339	692732	1215454	522722
5	876468	636154	240313	429496	189183
6	1650816	1196804	454012	738733	284721
7	5057902	3692898	1365002	2463563	1098560
Total	25293384	16235381	9058004	15367791	6309786

\* Here Base-Mile Ratios are computed as  $\frac{\text{Indiana Miles} + \text{Miles in Non-IRP Jurisdictions}}{\text{Total Miles in All Jurisdictions}}$



It can be noted in Table 7 that Indiana would retain, on the average, about \$16.24 million while losing about \$9.06 million out of a total of about \$25.3 million. The additional amount to be paid by Indiana based carriers for vehicle registration would be about \$6.31 million.

If the mileage ratios include only Indiana miles as base miles (Base Mile Ratio 2), Indiana would retain, on the average, about \$12.25 million, while losing about \$13.04 million, as shown in Table 8. The additional amount to be paid by Indiana carriers, however, would decrease to \$2.33 million..

b. Estimation of Population Variance and Confidence Intervals - To obtain confidence intervals, the variance of the estimated fees needs to be computed. The variance of the fees estimated for each carrier group was determined by the following formula from Reference 6:

$$S^2 = \sum_{i=1}^7 N_i (N_i - n_i) \frac{S_i^2}{n_i}$$

where,  $S^2$  = Population variance;

$N_i$  = Estimated number of interstate vehicles  
in carrier group i;

$n_i$  = Sample vehicles in carrier group i;

$S_i^2$  = Sample variance of fees for carrier  
group i, computed in Step 4.

The 95% confidence intervals of estimated fees were computed on the assumption of a normal distribution, as shown below:



Table 8. Estimated Registration Fees of Indiana Based Carriers for Interstate Vehicles of 26,000 lbs. or More Using Base-Mile Ratio 2\*

Group Number	Total 100% Fee (Interstate Vehicles 26 <sup>k</sup> or More)	Total Revenue Retained by Indiana due to IRP	Total Revenue Lost by Indiana due to IRP	Total Fees Paid by Carriers to Other IRP Jurisdiction	Total Additional Fee Paid by Carriers Due to IRP
1	8460934	3243587	5217348	5854826	637478
2	3331365	1340373	1990991	2374496	383504
3	3675827	1771395	1904432	2291219	386787
4	2240071	1274073	965998	1215454	249456
5	876468	552559	323908	429496	105588
6	1650816	983220	667596	738733	71137
7	5057902	3088615	1969286	2463563	494277
Total	25293384	12253827	13039561	15367791	2328231

\* Here Base Mile Ratios are computed as

Indiana Miles  
Total Miles in All Jurisdictions





95% Confidence Interval = Estimated Average Fee  $\pm$  1.96 \* S

The resulting confidence intervals of the estimated fees are presented in Tables 9 and 10.

7. Estimation of Additional Registration Fee per Vehicle  
for Indiana Carriers

In order to indicate the fiscal impact on carriers, computation were made of additional registration fees expected to be paid by Indiana carriers per vehicle. In Tables 11 and 12 are presented the average additional registration fees to be paid by Indiana carriers due to IRP. It can be noted that the added burden is mostly on carriers with larger fleet size, if non-IRP states are included with Indiana miles in mileage ratio computations. However, if only Indiana miles are considered, the additional registration fee per vehicle becomes considerably lower, and it ranges from \$19.90 for group 6 to \$69.22 for group 2.

Estimation of Revenue From Carriers Based in  
Other IRP Jurisdictions

If Indiana joins the IRP, the carriers from other IRP jurisdictions using Indiana highways will be required to pay Indiana registration fees in the proportion the mileage in Indiana is of the total mileage travelled by the fleet.

In order to estimate incoming revenue from out-of-state carriers under IRP, it is necessary to have the following informa-



Table 9. Confidence Intervals of Estimated Registration Fees Using  
Base-Mile Ratio 1.

	Average (\$)	Standard Deviation (\$)	Confidence Interval Based on 95% Confidence Level
Total 100% Fee (Interstate Vehicles 26k or More)	25293384	296580	24712086 T0 25874682
Total 100% Fee (All Vehicles 26k or More)	35119756	634639	33875864 T0 36363648
Total Revenue Retained by Indiana	16235381	239909	15765158 T0 16705604
Total Revenue Lost by Indiana	9058004	131514	8800236 T0 9315772
Total Fees Paid by Carriers to Other IRP Jurisdictions	15367791	223958	14928832 T0 15806750
Total Additional Fees Paid by Indiana Carriers	6309786	105252	6103492 T0 6516080



Table 10. Confidence Intervals of Estimated Registration Fees Using  
Base-Mile Ratio 2.

	Average (\$)	Standard Deviation (\$)	Confidence Interval Based on 95% Confidence Level
Total 100% Fee (Interstate Vehicles 26K or More)	25293384	296580	24712086 TO 25874682
Total 100% Fee (All Vehicles 26k or More)	35119756	634639	33875864 TO 36363648
Total Revenue Retained by Indiana	12253827	217556	11827416 TO 12680238
Total Revenue Lost by Indiana	13039561	184788	12677376 TO 13401746
Total Fees Paid by Carriers to Other IRP Jurisdictions	15367791	223958	14928832 TO 15806750
Total Additional Fees Paid by Indiana Carriers	2328231	125818	2081626 TO 2574836



Table 11. Average Registration Fees Paid by Indiana Based Carriers for  
26,000 lb. or More Interstate Vehicles Using Base Mile Ratio 1

Carrier Group	Current Registration Fee (\$/vehicle)	Apportioned Fee to be Paid due to IRP (\$/vehicle)	Fee to be Paid to Other IRP Jurisdictions (\$/vehicle)	Additional Fee to be paid (\$/vehicle)
1	592.13	345.58	409.74	163.19
2	601.33	339.14	428.61	166.42
3	572.74	365.43	357.00	149.70
4	485.07	335.07	263.20	113.19
5	416.37	302.21	204.04	89.87
6	461.90	334.86	206.70	79.66
7	342.28	249.91	166.72	74.34





Table 12. Average Registration Fees Paid by Indiana Based Carriers  
for 26,000 lb or more Interstate Vehicles Using Base-  
Mile Ratio 2.

Carrier Group	Current Registration Fee (\$/vehicle)	Apportioned Fee to be Paid due to IRP (\$/vehicle)	Fee to be Paid to Other IRP Jurisdictions (\$/vehicle)	Additional Fee to be paid (\$/vehicle)
1	592.13	227.00	409.74	44.61
2	601.33	241.94	428.61	69.22
3	572.74	276.00	357.00	60.27
4	485.07	275.89	263.20	54.02
5	416.37	262.50	204.04	50.16
6	461.90	275.10	206.70	19.90
7	342.28	209.02	166.72	33.45



tion: for each IRP-based carrier, total fleet miles and Indiana miles driven; number of trucks and tractors by registered vehicle weight; and a list of Indiana vehicle registration fees. To calculate revenue due Indiana, for each carrier, Indiana miles are divided by total miles. Next, Indiana full registration fees (based on registered weight) are calculated for each fleet vehicle and the total fees for the fleet is then obtained. The proportion of Indiana miles to total miles is then multiplied by the total fees for the fleet. This process must be repeated for each IRP carrier that operates in Indiana.

#### Data Sources

The principal data bases for this analysis included the following.

1. Indiana miles and total miles by carrier and by state for 1981 and 1982 from the Indiana motor fuel use tax records, for those carriers for which valid fleet information was available in the indefinite situs tax records.
2. Indiana miles and total miles by state for all carriers for 1981 and 1982 from the Indiana motor fuel use tax records.
3. Indiana miles and total miles along with fleet size information on number of trucks and tractors by carrier and by state for 1981 from the Indiana indefinite situs



tax records for those carriers with valid fleet information.

4. Total number of carriers by state that were assessed indefinite situs tax in 1983 (i.e., carrier data were for 1982).
5. Indiana miles and total miles along with fleet size information by number and type of vehicles for each carrier from the IRP recap reports from the AAMVA. The following states are those for which 1982 recap reports were available: Arizona, Colorado, Kansas, Wyoming, North Carolina, Pennsylvania, Texas, Wisconsin and Illinois.
6. Indiana miles and total miles along with fleet information by weight for all Alberta based carriers traveling in Indiana in 1982 from the Alberta Motor Transport Board.

Before the revenue estimation procedure is described, it is important to discuss the type and quality of the data bases. First, the motor fuel use tax data refer to trucks and tractors with three or more axles. Also, the motor fuel use tax requirements do not include information on fleet. The fleet information is available in indefinite situs tax data; however, such tax is imposed on all power units of 11,000 lb. or more registered weight that operate interstate. Furthermore, indefinite situs



tax was imposed on assessed current value of the fleet and vehicles in a fleet with total assessed value of less than the minimum value of \$100 were excluded. In addition, the only complete mileage and fleet data from indefinite situs tax records were available for 1981. The IRP recap data from the AAMVA can generally be considered to be most appropriate for the analysis. However, a random check of the data indicated coding errors in fleet information and inconsistencies in the mileage information. The inconsistencies were further confirmed by comparing the Wisconsin mileage information procured directly from the Wisconsin Department of Motor Vehicles with the AAMVA supplied data. The coding errors in fleet information of the IRP recap data, however, could be corrected without much difficulty.

#### Estimation Procedure

No random sample survey was necessary to compute the Indiana revenue from carriers from IRP jurisdictions, because sufficient information was already available from the sources discussed above to make reliable estimates. The steps followed to use the available data in making the necessary computations are discussed below.

##### 1. Identification of the Carrier Characteristics

The indefinite situs tax data file for 1982 assessment included information on those carriers that provided valid fleet data for 1981. All other data on mileages from motor fuel tax records were cross referenced in terms of these carriers. Only





information available from the 1983 indefinite situs tax assessment was the number of total carriers by state operating in Indiana in 1982. The number of carriers included in the data file as well as the total number of carriers operating in Indiana in 1982 are shown in Table 13. It was also known that the carriers included in the 1981 indefinite tax assessment also operated in 1982 in Indiana, as identified in the 1982 motor fuel use tax data.

It was felt, therefore, that carriers for which both mileage and fleet data were available could provide a sample estimate of the total population of carriers operating in Indiana from each of the IRP states. The assumption made was that those carriers not included in the available data file were similar to those who were. It can be argued that those who did not provide fleet information were most likely to be small operators. However, a detailed examination of the available carrier data indicated that the carriers reported in the data file represented all fleet sizes. In Table 14 is presented the percent distribution of the carriers included in the data file in terms of their fleet sizes. The breakdown of carrier groups used in this Table followed the same classification used in the sample survey of Indiana based carriers. As the fleet information was not an absolute requirement, it can reasonably be assumed, therefore, the reporting of fleet information was independent of carrier fleet size.



Table 13 . Number of Carriers by State

Jurisdiction	No. of Carriers in the Data File	Total No. of Carriers Assessed
Alabama	153	445
Arkansas	102	250
Arizona	13	53
Colorado	35	90
Iowa	283	615
Idaho	9	35
Illinois	1127	260]
Kansas	76	196
Kentucky	409	1071
Louisiana	23	48
Michigan	801	1866
Minnesota	247	635
Missouri	322	687
Mississippi	41	112
Montana	15	42
North Carolina	209	521
North Dakota	37	100
Nebraska	98	213
Oklahoma	80	169
Oregon	21	82
Pennsylvania	378	878
South Dakota	36	96
Tennessee	248	683
Texas	132	362
Utah	25	66
Virginia	122	306
Wisconsin	476	937
Wyoming	2	6
Total	5510	13198



Table 14. Percentage Distribution of Carriers by Fleet Size in the Indefinite Situs Tax Data File

IRP State	Carrier Group						
	1	2	3	4	5	6	7
Alabama	5.88	7.84	10.46	7.84	6.54	11.11	50.33
Arkansas	6.86	9.80	18.63	15.69	7.84	17.65	23.53
Arizona	15.38	0	30.77	15.38	7.69	0	30.77
Colorado	14.29	14.29	14.29	17.14	14.29	17.14	8.57
Florida	4.95	3.96	6.93	7.92	6.44	6.93	62.87
Iowa	5.10	4.59	9.89	16.25	10.95	15.90	37.10
Idaho	0	22.22	11.11	22.22	0	11.11	33.33
Illinois	3.37	5.06	9.14	11.98	10.29	17.21	42.95
Kansas	7.89	5.26	18.42	10.53	17.11	14.47	26.32
Kentucky	2.20	2.20	6.36	8.07	8.07	19.07	54.03
Louisiana	8.70	8.70	13.04	21.74	17.39	13.04	17.39
Michigan	2.75	2.25	6.37	10.36	6.49	18.60	53.18
Minnesota	10.12	5.26	12.55	12.15	8.50	14.17	37.25
Missouri	6.21	7.14	10.25	12.11	10.25	14.29	39.75
Mississippi	12.20	4.88	14.63	9.76	14.63	19.51	24.39
Montana	20.00	13.33	20.00	6.67	13.33	6.67	20.00
N. Carolina	8.61	9.57	13.88	14.83	9.57	10.53	33.01
North Dakota	0	0	16.22	16.22	8.11	8.11	51.35
Nebraska	9.18	15.31	10.20	19.39	9.18	10.20	26.53
Oklahoma	16.25	1.25	11.25	8.75	17.50	5.00	40.00
Oregon	4.76	4.76	23.81	14.29	0	0	52.38
Pennsylvania	4.50	8.73	11.90	12.43	10.32	17.46	34.66
South Dakota	8.33	5.56	8.33	11.11	8.33	25.00	33.33
Tennessee	5.65	5.65	6.85	16.13	10.08	16.53	39.11
Texas	9.09	14.39	18.94	12.88	11.36	12.12	21.21
Utah	33.33	6.67	6.67	33.33	0	13.33	6.67
Virginia	6.56	6.56	18.03	11.48	9.02	12.30	36.07
Wisconsin	4.20	3.57	9.66	13.87	10.92	17.65	40.13
Wyoming	0	50.00	50.00	0	0	0	0
Total	5.22	5.46	10.08	12.20	9.44	15.72	41.88



## 2. Computation of Mileage Ratios

As the indefinite situs tax records provided the mileage and fleet totals by carrier from each jurisdiction in a consistent basis, the base information for the computations used this data source. Although the 1982 mileage data were available from the motor fuel use tax records, it was felt that the individual mileages from this source may be misleading, because the data could not be validated on the basis of fleet data. In addition, the vehicles for motor fuel use tax are represented by 3-axle or more without direct information on weight class, while the available data on indefinite tax miles were related to specific weight groups. However, for the purpose of getting an overall estimate of the relative change in mileages for a particular carrier, the motor fuel use tax data can be appropriate. Therefore, the 1981 mileages for each carrier recorded in indefinite situs tax data were updated to estimated 1982 equivalents by applying the ratio of 1982 mileages over 1981 mileages for the carrier for both Indiana miles and total fleet miles reported in motor fuel use tax records. The mileage ratio for a carrier was then computed by dividing the updated Indiana miles with updated total miles.

## 3. Estimation of Fleet Size and Composition

In this step, two separate computations were made. First, the fleet size for each carrier was adjusted to represent power units of 26,000 lb. or more weight. Next, the composition of the power units was determined in terms of weight classes.





a. Exclusion of Power Units of less than 26,000 lb. Weight

The indefinite situs tax records provided total trucks and total tractors for each carrier. However, some of these power units would be less than 26,000 lb. weight, as the indefinite situs tax was imposed on vehicles with 11,000 lb. or more weight. An appropriate adjustment procedure was used to exclude the vehicles of lesser weight.

For this purpose, the entire detailed fleet data for nine states from the AAMVA were analyzed state by state. It was found that almost all tractors (greater than 99%) from any state operating in Indiana were 26,000 lb. or more. No adjustment in tractor data was therefore deemed necessary. However, the truck records showed a wide variation. For example, while all trucks operating in Indiana from Arizona and Wyoming were 26,000 lb. or more, only 69% from Texas were 26,000 lb. or more, 72% from Illinois, 73% from Colorado, 78% from Kansas, 88% from North Carolina, 93% from Wisconsin and 99% from Pennsylvania. These numbers are reasonable and can be expected.

Since the AAMVA data were only for nine states, the truck adjustment factors were developed for other IRP jurisdictions on the basis of expected regional similarity. For example, the truck adjustment factor for Texas was applied to Oklahoma and Arkansas; Kansas factor applied to Missouri and Nebraska; North Carolina factor to Alabama, Louisiana, Mississippi, Tennessee and Virginia; the average of Illinois and Wisconsin to Michigan and Minnesota; while the average of Wyoming and Colorado was applied to Idaho, Montana, North Dakota, Oregon, South Dakota and Utah.



It should be noted that the percentage of trucks in the fleet of interstate vehicles from other jurisdictions is relatively small (6%) and the truck adjustment made in the analysis would affect only a small part of the revenue computations.

b. Distribution of Trucks and Tractors by Weight Class

The fleet information available from the indefinite situs tax records included total number of trucks and tractors for each carrier from each jurisdiction. However, for the purpose of estimating registration revenues, it is necessary to know the weight distribution of the trucks and tractors for each carrier. The fleet information from the IRP recap data for nine states was employed to develop appropriate weight distributions. The recap data provided number of trucks and tractors by weight class for each carrier from each of the nine states. As the computer tape was not available, a random sample of about 10% of fleet data was taken manually, on a state by state basis, recording for each sampled listing the number of vehicles by type and their weight class. Next, for each truck weight class, the number of units was to be summed and divided by the total number of trucks sampled to provide fraction of trucks in a particular weight class. The same computation was done for the tractor sample. This procedure was executed twice with two sets of random sample and the average values of the two were considered in the analysis. The truck and tractor weight distributions developed for the nine states were applied to other jurisdictions on the basis of regional similarity, as mentioned in Step 3a.



#### 4. Estimation of Indiana Revenue

At this point all the necessary data to compute the expected revenue for Indiana from the current IRP jurisdictions were available. The computations were done, as shown below:

$$\begin{aligned} \text{Indiana Revenue} &= [\text{Number of Trucks} * \text{Weighted Average} \\ \text{from a Carrier} &\quad \text{Truck Registration Fee}] + [\text{Number of} \\ &\quad \text{Tractors} * \text{Weighted Average Tractor} \\ &\quad \text{Registration Fee}] * \text{Indiana Mileage} \\ &\quad \text{Ratio} \end{aligned}$$

Where,

$$\begin{aligned} \text{Weighted Average} &= \sum \text{Fraction of Vehicles in Weight} \\ \text{Fee for a Vehicle} &\quad \text{j Class j} * \text{Registration Fee for} \\ \text{Type} &\quad \text{Vehicle Type of Weight Class j} \end{aligned}$$

$$\begin{aligned} \text{Indiana Mileage} &= \frac{\text{Miles in Indiana}}{\text{Total Miles in All Jurisdictions}} \\ \text{Ratio} & \end{aligned}$$

The mileage ratios were available from Step 2. The number of trucks and tractors for each carrier were computed in Step 3a. The fractions of vehicles in various weight classes were developed in Step 3b.

After the carriers in IRP states included in the indefinite situs tax file were processed, the individual revenues were summed up and the amount of revenue expected from all carriers from each IRP state was computed, as shown below.

$$\begin{aligned} \text{Total Revenue} &= \left( \sum_{i=1}^N \text{Revenue from} \right) * \left( \frac{\text{Actual No. of Carriers}}{\text{No. of Carriers in Data}} \right) \\ \text{from a State} &\quad \text{carrier i} \quad \text{File (N)} \end{aligned}$$



Actual number of carriers refers to the total carriers based in an IRP state that were assessed an indefinite situs tax in Indiana in 1983. The actual number of carriers as well as the number of carriers included in the data file have been presented in Table 13.

In Table 15 are presented the estimated revenues that can be expected from carriers based in current IRP jurisdictions and operating in Indiana. This set of computations was termed as the low estimate, as it did not include the vehicles which were exempt from indefinite situs tax but could be responsible for apportioned registration fees.

It should be noted that the computations for Alberta were direct as all necessary data were available and no adjustments were necessary.

##### 5. Estimation of Additional Vehicles

As mentioned earlier, indefinite situs tax is imposed on assessed value of a fleet and the minimum value is \$100. It is possible that there were fleets that did not meet the minimum value requirement but would be eligible for the registration fee. An estimate of these vehicles was made by first computing average total miles per vehicle from the indefinite situs tax data by state. Then these average values were applied to the total miles from 1982 motor fuel data related to that state. The resulting total number of power units was compared with the reported number of power units in the indefinite situs tax data and the





Table 15. Registration Revenue from Other IRP Jurisdictions  
Based Carriers: Low Estimate

Jurisdiction	Indiana Miles	Total Miles	No. of Power Units	Apportioned Indiana Registration Fees
Alabama	19948684	377498406	12125	434850
Alberta	194479	19079314	158	548
Arkansas	16453494	430522300	7978	222091
Arizona	2526752	55922991	1374	75752
Colorado	14306709	427136776	2723	56115
Iowa	25914659	416768571	9319	404735
Idaho	4134807	13999995	521	42629
Illinois	135299008	1240862051	37158	2265185
Kansas	34890684	519287083	11128	484061
Kentucky	20289518	369105947	5965	512143
Louisiana	923904	68470148	2153	23908
Michigan	67581363	580505946	19513	1390770
Minnesota	44151664	693419276	18711	810170
Missouri	34576621	671137846	13004	554221
Mississippi	1569845	76436046	2286	25521
Montana	1351557	67261567	2506	35566
North Carolina	24469368	678707642	12898	284627
North Dakota	634396	26312426	573	11051
Nebraska	14234069	314842708	4910	133331
Oklahoma	8884702	264913797	6665	181968
Oregon	412690	21546696	1086	16682
Pennsylvania	44014699	635561888	18844	953498
South Dakota	4461855	112835024	2445	71867
Tennessee	25725872	447588486	12873	360548
Texas	10424687	456533619	15221	258070
Utah	11644906	217646448	5988	213874
Virginia	14386498	271627474	7450	253558
Wisconsin	69623817	663874598	14984	1082524
Wyoming	73223	3411802	219	3297
Total	653104531	10142816870	250778	11159862



difference was considered to be exempt vehicles. All exempt vehicles were assumed to be trucks and appropriate adjustments were made to exclude vehicles less than 26,000 lb, as discussed in Step 3a. It should be noted that judgement was applied in estimating the number of additional vehicles; if the average mileage was found to be less than the generally assumed average of 100,000 miles, the value of the standard average was considered.

The revenue estimates were then made on the basis of updated fleet information. The rest of the computations followed the same steps discussed earlier. The resulting revenue figures, termed as high estimate, are presented in Table 16. It may be noted that the number of additional trucks was about 30,000 and most of them were from neighboring states.

#### Assessment of Fiscal Impact

After estimating revenues from different sources that can be expected if Indiana joins IRP, an analysis was made of the net gain or net loss of revenues for Indiana under current levels of registration fees. A set of similar computations was also made with three separate levels of increase in the Indiana registration fee schedule, 25%, 35% and 50%. The registration fee increase was considered only for vehicles with 26,000 lb. or more weight.



Table 16. Registration Revenue from Other IRP Jurisdictions  
Based Carriers: High Estimate

Jurisdiction	Indiana Miles	Total Miles	No. of Power Units	Apportioned Indiana Registration Fees (\$)
Alabama	19948684	377498406	14394	461297
Alberta	194479	19079310	158	548
Arkansas	16453494	430522300	8996	230225
Arizona	2526752	55922991	1488	89781
Colorado	14306709	427136776	3477	60407
Iowa	25914659	416768571	10277	420203
Idaho	4134807	13999995	521	42629
Illinois	135299008	1240862051	39829	2355919
Kansas	34890684	519287083	11869	499826
Kentucky	20289518	369105947	6489	538682
Louisiana	923904	68470148	2761	26759
Michigan	67581363	580505946	23489	1549456
Minnesota	44151664	693419276	21312	865354
Missouri	34576621	671137846	14344	578474
Mississippi	1569845	76436046	2948	29064
Montana	1351557	67261567	3074	40550
North Carolina	24469368	678707642	15042	303699
North Dakota	634396	26312426	608	11323
Nebraska	14234069	314842708	5275	136073
Oklahoma	8884702	264913797	7544	186046
Oregon	412690	21546696	1410	20089
Pennsylvania	44014699	635561888	22433	1051588
South Dakota	4461855	112835024	2626	73666
Tennessee	25725872	447588486	14588	386303
Texas	10424687	456533619	17705	270796
Utah	11644906	217646448	7752	236968
Virginia	14386498	271627474	8551	273497
Wisconsin	69623817	663874598	16843	1125512
Wyoming	73223	3411802	438	4537
Total	653104531	10142816870	286241	\$11864733



Revenue Computations With Increased Fee Schedules

In Tables 17 and 18 are presented the summary of the computations using Base-Mile ratio 1 and Base-Mile Ratio 2, respectively. At each registration level, the gain or loss represents the change in total revenue for Indiana before and after joining IRP. For example, if the registration fee is increased 25% and Indiana does not join IRP, the amount of revenue would be 100% Indiana fee and, on the average, this amount would be \$31.617 million for 26,000 lb. or more interstate vehicles. However, if Indiana joins IRP and the base miles are computed as Indiana miles plus non-IRP miles (Base-Mile Ratio 1), the net average gain at 25% increase in registration fees would be \$11.814 million, as can be computed from Table 17. On the other hand, if only Indiana miles are included in the mileage ratio (Base-Mile Ratio 2), the net effect is an average gain of \$6.871 million, as can be computed from Table 18.

It should be pointed out that an earlier study [1], done in 1978 found that Indiana would collect between \$3.44 and \$8.6 million in additional revenue by participating in the IRP even with Indiana miles only in base-mile ratio computation. The authors of the present study feel that the earlier figures were overestimated. The reason for this overestimation was the procedure used in the earlier study which followed a simple random sampling of carriers and the average revenue per carrier estimated from the sample was multiplied by the actual number of carriers to obtain total fees. Unfortunately, the carrier population is not homogeneous and there is a wide variation in fleet sizes, ranging from several thousand vehicles to one or two vehi-





Table 17. Impact of Registration Fee Increase and IRP Using Base-Mile Ratio 1 (x \$10<sup>6</sup>)

	Current Fees			25% Increase in Indiana Fees			35% Increase in Indiana Fees			50% Increase in Indiana Fees		
	Low	Avg.	High	Low	Avg.	High	Low	Avg.	High	Low	Avg.	High
100% Fees from All Vehicles of 26K or more	33.876	35.120	36.364	42.345	43.900	45.456	45.732	47.412	49.091	50.814	52.680	54.545
100% Fees from Interstate Vehicles of 26K or more	24.712	25.293	25.875	30.890	31.617	32.343	33.361	34.146	34.931	37.068	37.940	38.812
Fees Retained by Indiana	15.765	16.235	16.706	19.706	20.294	20.882	21.283	21.918	22.553	23.648	24.343	25.058
Fees Lost due to IRP	8.800	9.058	9.316	11.000	11.323	11.645	11.880	12.228	12.576	13.200	13.587	13.974
Fees Paid by Indiana Carriers to Other IRP Jurisdictions	14.929	15.368	15.807	14.929	15.368	15.807	14.929	15.368	15.807	14.929	15.378	15.807
Additional Fees * Paid by Carriers (Interstate Vehicles of 26K or more)	6.103	6.310	6.516	3.885	4.045	4.206	2.993	3.139	3.286	1.649	1.781	1.912
Fees Gained by Indiana from Other IRP Jurisdictions	11.159	11.512	11.864	13.949	14.390	14.830	15.065	15.541	16.016	16.739	17.268	17.796
Total Fees Received ** by Indiana Due to IRP (All Vehicles of 26K or more)	36.088	37.574	39.059	45.110	46.934	48.824	48.719	50.725	52.730	54.132	56.361	58.589

\* (Fees Retained by Indiana + Fees Paid to Other IRP Jurisdictions) - 100% Fees for Interstate Vehicles of 26K or More.

\*\* Fees From Both Interstate and Intrastate Vehicles = [Fees Retained by Indiana + Fees Gained from Other IRP Jurisdictions] + [100% Fee for All Vehicles of 26K or More - 100% Fee for Interstate Vehicles of 26K or More].



Table 18. Impact of Registration Fee Increase and IRP Using Base-Mile Ratio 2 (x \$10<sup>6</sup>)

	Current Fees			25% Increase in Indiana Fees			35% Increase in Indiana Fees			50% Increase in Indiana Fees		
	Low	Avg.	High	Low	Avg.	High	Low	Avg.	High	Low	Avg.	High
100% Fees from All Vehicles of 26K or more	33.876	35.120	36.364	42.345	43.900	45.456	45.732	47.412	49.091	50.814	52.680	54.545
100% Fees from Interstate Vehicles of 26K or more	24.712	25.293	25.875	30.890	31.617	32.343	33.361	34.146	34.931	37.068	37.940	38.812
Fees Retained by Indiana	11.827	12.254	12.680	14.784	15.317	15.850	15.967	16.543	17.118	17.741	18.381	19.020
Fees Lost due to IRP	12.677	13.040	13.402	15.847	16.299	16.752	17.114	17.603	18.092	19.016	19.559	20.103
Fees Paid by Indiana Carriers to Other IRP Jurisdictions	14.929	15.368	15.807	14.929	15.368	15.807	14.929	15.368	15.807	14.929	15.368	15.807
Additional Fees* Paid by Carriers (Interstate Vehicles of 26K or more)	2.082	2.328	2.575	-1.194	-0.932	-0.669	-2.512	-2.236	-1.959	-4.497	-4.191	-3.886
Fees Gained by Indiana from Other IRP Jurisdictions	11.159	11.512	11.864	13.949	14.390	14.830	15.065	15.541	16.016	16.739	17.268	17.726
Total Fees Received** by Indiana Due to IRP (All Vehicles of 26K or more)	32.153	33.593	35.033	40.191	41.991	43.791	43.407	45.351	47.295	48.230	50.390	52.550

\* (Fees Retained by Indiana + Fees Paid to Other IRP Jurisdictions) - 100% Fees for Interstate Vehicles of 26K or More.

\*\* Fees From Both Interstate and Intrastate Vehicles = [Fees Retained by Indiana + Fees Gained from Other IRP Jurisdictions] + [100% Fee for All Vehicles of 26K or More - 100% Fee for Interstate Vehicles of 26K or More].



cles per carrier. It is also known that there are many more small carriers than large carriers. Consequently, an average revenue per carrier would tend to give a much larger total revenue estimate.

#### Net Change in Revenue With Respect to Current Level

It is desirable to examine how much additional revenue that Indiana can expect over and above what it collects at present by joining IRP as well as by increasing the registration fees. In Table 19 are presented the maximum and minimum amounts of net change in Indiana registration revenue that can be expected with and without IRP under various levels of fee increase. The maximum amount was computed by taking the difference between the high estimate of future revenue and the high estimate of current revenue, given in Tables 17 and 18. The minimum amount was obtained by taking the difference between the low estimate of future revenue and the low estimate of current revenue.

In computing the net change in revenue with fee increase under IRP, the revenue increase that can be expected from intrastate carriers was added to the net revenue increase due to interstate vehicles involved in IRP.

#### Additional Registration Fee per Vehicle

It is interesting to note that if Indiana registration fees are increased, Indiana carriers would be better off with IRP than without, provided the mileage ratios are computed only with Indi-



Table 19. Net Change in Revenue Over Current Revenue Level (x \$10<sup>6</sup>)

	Without IRP			With IRP and Base-Mile Ratio 1			With IRP and Base-Mile Ratio 2		
	Max.	Avg.	Min.	Max.	Avg.	Min.	Max.	Avg.	Min.
Current Fee Schedule	0.000	0.00	0.000	2.695	2.454	2.212	-1.723	-1.527	-1.331
25% Increase in Indiana Fees	9.092	8.780	8.469	12.460	11.814	11.234	7.427	6.871	6.315
35% Increase in Indiana Fees	12.727	12.292	11.856	16.366	15.605	14.843	10.931	10.231	9.531
50% Increase in Indiana Fees	18.181	17.560	16.938	22.225	21.241	20.256	16.186	15.270	14.354

Note:

Base-Mile Ratio 1 =  $\frac{\text{Indiana Miles} + \text{Miles in Non-IRP Jurisdictions}}{\text{Total Miles in All Jurisdictions}}$

Base-Mile Ratio 2 =  $\frac{\text{Indiana Miles}}{\text{Total Miles in All Jurisdictions}}$





ana miles. This fact is better illustrated by average fees per vehicle. Average registration fees per vehicle for each group of Indiana carriers under various registration fee schedules, with and without Indiana's participation in the IRP, are presented in Tables 20 and 21. The additional registration fee per vehicle that the Indiana carriers would have to pay if registration fees are increased with respect to current fee schedule with and without Indiana's participation in the IRP can also be determined from these Tables.

#### Additional Administrative Cost

Any decision to join the IRP should be made by considering the additional administrative cost that can be expected. A broad estimate of this cost was made on the basis of the procedure discussed in the IRP Study Manual prepared by the AAMAVA [1]. It can be expected that the additional administrative cost would be in the range of \$500,000 per year. However, a more detailed estimate should be made to assess this cost specifically for Indiana. It should be pointed out that frequently other states have covered some or all of the administrative expenses by a small fee per cab card.

#### Other Considerations

The revenue figures presented assume that the Indiana based carriers would continue to locate in Indiana and the carriers from other IRP jurisdictions would continue to operate in Indiana at least at the same level as in 1982. However, any change in



Table 20. Average Registration Fee Per Vehicle for Indiana Carriers With and Without IRP Under Different Registration Fee Levels: Using Base-Mile Ratio 1.

Carrier Group	Current Fee Level		25% Increase in Indiana Fees		35% Increase in Indiana Fees		50% Increase in Indiana Fees	
	Without IRP	With IRP	Without IRP	With IRP	Without IRP	With IRP	Without IRP	With IRP
1	\$590.38	\$748.07	\$737.97	\$836.11	\$797.01	\$871.32	\$885.57	\$924.14
2	599.52	756.70	749.40	844.68	809.36	879.87	849.28	932.65
3	571.02	697.39	713.78	796.40	770.88	836.00	856.54	895.41
4	483.80	563.93	604.75	658.33	653.13	696.09	725.69	752.73
5	415.12	465.24	518.40	553.10	560.41	588.25	622.67	640.96
6	460.55	506.84	575.68	603.52	621.74	642.20	690.82	700.21
7	341.19	375.34	426.49	450.03	460.60	479.90	511.78	524.72
Average of All Groups	456.84	538.92	571.05	623.67	616.74	657.58	685.26	708.43



Table 21. Average Registration Fee Per Vehicle for Indiana Carriers With and Without IRP Under Different Registration Fee Levels: Using Base-Mile Ratio 2.

Carrier Group	Current Fee Level		25% Increase in Indiana Fees		35% Increase in Indiana Fees		50% Increase in Indiana Fees	
	Without IRP	With IRP	Without IRP	With IRP	Without IRP	With IRP	Without IRP	With IRP
1	\$590.38	\$633.49	\$737.97	\$692.87	\$797.01	\$716.63	\$885.57	\$752.26
2	599.52	664.90	749.40	729.93	809.36	755.94	849.28	794.96
3	571.02	621.90	713.78	702.03	770.88	734.09	856.54	782.17
4	483.80	522.04	604.75	605.97	653.13	639.54	725.69	689.89
5	415.12	433.09	518.40	525.42	560.41	558.35	622.67	607.74
6	460.55	472.11	575.68	560.11	621.74	595.31	690.82	648.11
7	341.19	356.55	426.49	426.55	460.60	454.54	511.78	496.54
Average of All Groups	456.84	487.13	571.05	558.93	616.74	587.66	685.26	630.74



registration fee schedules might affect decisions of individual carriers, particularly with respect to the location of their base-state. If an increase in truck registration fees is such that Indiana still retains its competitiveness with the neighboring states, it may be possible that some additional carriers may relocate in Indiana, particularly if Indiana computes its mileage ratios only with Indiana miles. On the other hand, the level of property tax in Indiana is a built-in tax burden for carriers located in Indiana. Any sizeable increase in registration fee without appropriate relief in property tax may adversely affect the level of truck registrations in Indiana.





## CHAPTER 3

### TRUCKING INDUSTRY AND STATE ECONOMY

#### Introduction

This chapter examines the role of the trucking industry in Indiana economy. In addition, it identifies the relevant issues associated with Indiana's joining IRP in the context of goals related to state economic growth. That is, what effect might an alternative truck registration policy have on Indiana's present trucking industry? Would it promote survival, health and growth of the industry and is that desirable for job creation and the economic well being of Indiana?

This chapter begins with the recognition that the states are in competition with each other over job creation and economic growth. Major shifts in the manufacturing base of the U.S., in population movements to the South and in international competitiveness have forced many Midwestern and Northeastern states into serious problems of unemployment, disinvestment and general economic malaise.

To counteract that trend many states have initiated economic development programs and are developing "strategic plans" whereby each attempts to capitalize on its comparative advantages. Indiana is among the states with an aggressive package of incentives for economic development and is presently formulating its first ever statewide strategic plan.



Every public policy proposal that affects the bottom line of business such as tax rates, tax abatements, loans, and regulatory fees (including vehicle registration) must be reviewed in the light of its impact on the local and statewide economy and on how it changes the competitive position of Indiana vis-a-vis other states. Economic and social conditions change so rapidly that it is easy for a state with some competitive edge to lose it through misconceived public policies.

### The Role of Trucking in Indiana's Economy

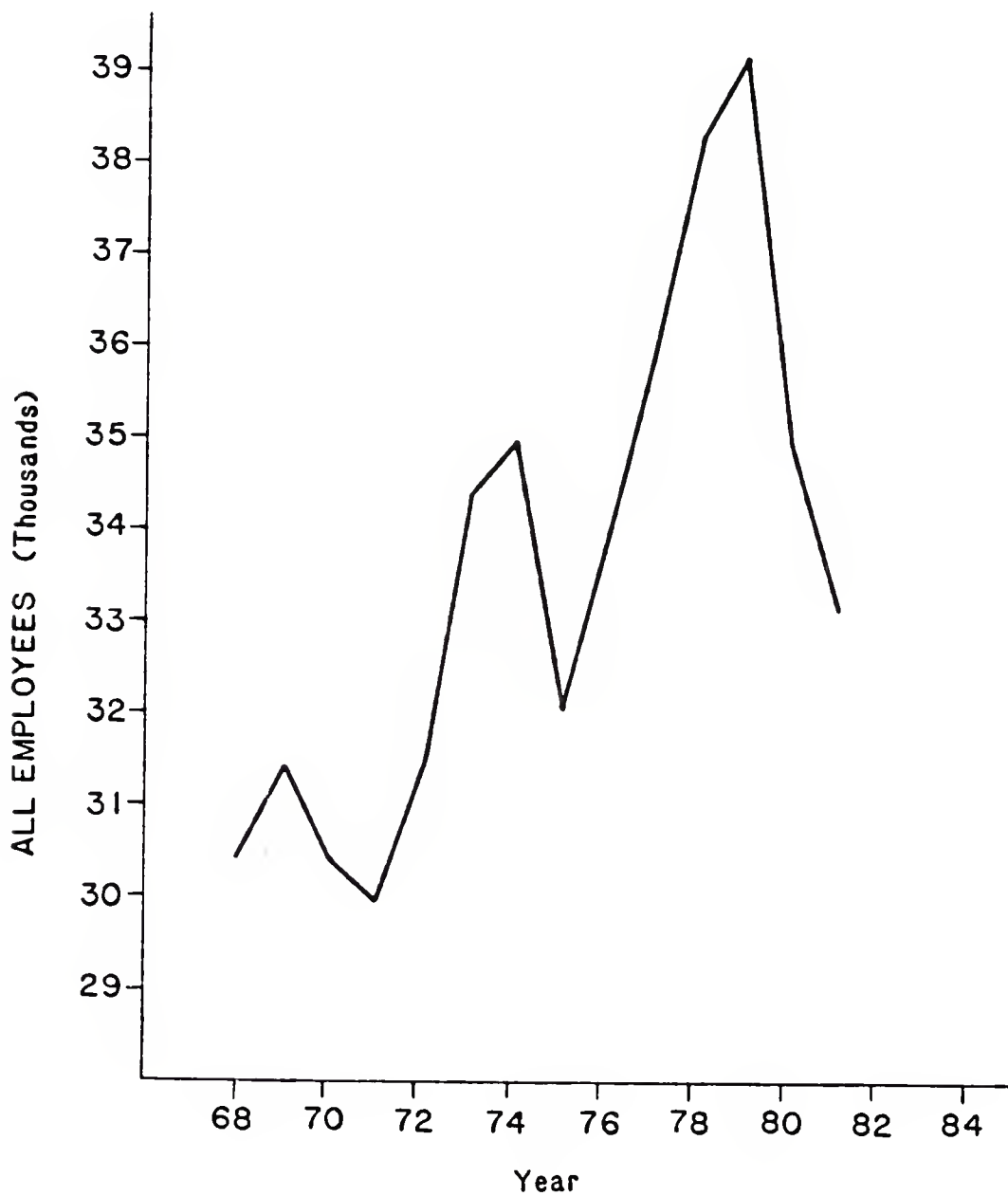
To evaluate the role of an industry in state economy we need to consider both stability and growth of that industry. Stability refers to how much employment fluctuates with business cycles, while growth refers to the increase in number employed averaged over good and bad times.

According to studies by Purdue's Department of Agricultural Economics [5], for the period 1970-80, employment stability in SIC 42, Trucking and Warehousing, has been identical with that of employment in Indiana taken as a whole. That is, fluctuations have been no better or worse than those in the Indiana economy. Employment growth, however, has been below the average annual Indiana growth of three percent for the 1970-1980 period. Thus, relative to the Indiana employment growth rate, jobs in the Trucking and Warehousing have been shrinking. The plot of Indiana employment in Trucking and Warehousing in Figure 2 shows the growth rate between the peaks of 1969 and 1979 as 2.45%. If we



Figure 2

INDIANA EMPLOYMENT IN TRUCKING AND WAREHOUSING (SIC 42)



Source: Bureau of Labor Statistics, Employment & Earnings, States and Areas, various years, U.S. Department of Labor.



take the troughs between 1975 and 1981, the growth rate was 1.19%.

The trucking industry in Indiana is presently undergoing a major shake-up reflective of the industry nationally. Three significant forces are at work:

- (i) A Malarial Economy. Trucking directly feels the impacts of the malarial economy of the last few years (repeated chills and fevers). The American Trucking Association reports that in 1982 the industry experienced the worst financial results in its history. The composite operating ratio (operating expenses/operating revenues) for motor carriers stood at 98.29 in 1982 and the net return after tax margin at 0.5 percent of operating revenues [2].
- (ii) Deregulation - 1980 Motor Carrier Act. The outgrowth of the 1980 Motor Carrier Act is causing significant adjustments and realignments in the industry. The influencing factors are: ease of entry, flexibility in operation and competitive freight rates.
- (iii) Highway Regulations and Financing - Surface Transportation Assistance Act, 1982.

Congress recently allowed truckers to increase their productivity by increasing truck size and weight and by providing for more flexible trailer





configurations (double bottoms). In return, federal truck user fees are to increase considerably. The tax on heavy trucks is scheduled to be \$1,900 by 1988, up from the current level of \$240.00. New truck size, weight and configuration provisions enhance productivity for general carriers but may not make much difference to specialty carriers (e.g. tanker, bulk grain, motor vehicle carrier).

### Issues and Goals

An IRP entry decision by Indiana is complicated by the following issues:

1. Base Plate State: Interstate motor carriers have some discretion over their state of base plate registration. A trucking enterprise is potentially more mobile than most forms of business. For large firms, headquarters can be relocated at branch locations and branch locations can be relocated across state borders. For single location firms base state registration might be changed by merging with other firms. In short, the institution of registration compacts between states introduces a degree of elasticity into the demand for truck registrations.
2. Capturing Out-of-State Carrier User Taxes: As a form of taxation it is extremely difficult to design a registration



system whereby there is a desirable relationship between fees and use or between jurisdictions receiving fees and jurisdictions of use. This is largely because the unit of payment of fees is not the vehicle per se but the firm owning the vehicle. Research by Hoffer and Gallegher suggest that the effective user tax rates (in \$/mile) is less for out-of-state carriers than for resident carriers [10].

3. Multiple User Taxes: A carrier cannot look at just base plate registration fees, but must be concerned with all costs associated with a vehicle operating in a particular state. For example, the cost of operating a 5-axle combination 10,000 miles in Indiana for a Ohio based carrier is about \$222 (fuel tax and \$1.00 permit), while the cost of operating the same vehicle for the same mileage in Ohio for an Indiana based carrier is about \$443 (fuel tax, ton-mile tax and \$1.00 permit).

Registration fees cannot be considered in isolation from the total package of user and property taxes imposed on the trucking business. At least four major groupings of taxes are of particular concern to the trucking firms in making locational and operational decisions: first, second and third structure taxes and property taxes. These are in addition to income, real property and sales taxes common to all businesses in most states.

First structure taxes are those on fuels and related



surcharges. Second structure taxes are motor-vehicle revenues and include registration and license fees. The third group are imposed on the motor carrier and relate to level of business activity. They include vehicle-mile, ton-mile, axle-mile and gross receipts taxes.

A fourth category of general taxes must be included because of their similarity with registration fees. This category includes property taxes. Both are levied against the vehicle and paid annually. Approximately one-half of the states levy a property tax on motor freight vehicles. The revenues for this tax are frequently appropriated to general rather than highway uses. However, to disregard them creates an illusory comparative advantage in a state such as Indiana that has relatively moderate registration fees but a sizeable property tax.

4. State Retaliatory Action: Any reciprocity decision by Indiana must be considered in the light of how other states will respond. Retaliatory action can be taken by increasing trip permit fees in reciprocity states. Our survey shows Indiana truckers in southern Indiana complaining about the high permit fees to operate in Kentucky.

#### Indiana's Competition

#### The Top Ten Trucking States

Table 22 shows the top ten states ranked by private and com-



Table 22 . Top Ten Truck States By Registration  
(Private and Commercial) (1981)

State	(IRP)	1981 Truck Registration
California	-	3,404,991
Texas	(1973)	3,085,800
Florida	Expected	1,363,380
Ohio	Expected	1,274,890
Illinois	(1977)	1,208,221
Michigan	(1983)	1,081,114
North Carolina	(1977)	1,054,746
Pennsylvania	(1982)	1,018,591
Indiana	-	968,143
New York	-	925,133

Source: Federal Highway Administration, Highway Statistics, 1981.





mercial truck registrations. These ten states account for 46.6% of all U.S. truck registrations. They show that the heaviest concentrations of trucks are in a few coastal states (California, Florida, North Carolina, Texas) and in the corridor/heartland Great Lakes states (Illinois, Indiana, Michigan, New York, Ohio, Pennsylvania). It is expected that by the end of 1983 six of these will be members of IRP.

#### IRP and Non-IRP Competition

As of now there are 29 members of IRP including the Province of Alberta. Six are big ten trucking states. The majority are corridor states in the heartland, mountain and plains regions. IRP is particularly attractive to states with relatively few registered trucks, relatively long road distances and high truck operating costs for domiciled vehicles (of which road user tax costs are a component).

States remaining outside IRP at the end of 1983 fall neatly into three groups, each of which have unique geographical characteristics. The first group (Group I) belongs to New England and Mid-Atlantic regions (Connecticut, Delaware, Maine, Massachusetts, New Hampshire, New York, Rhode Island, and Vermont). These states have not participated in any multilateral agreement.

The second group (Group II) comprises Indiana and those that primarily belong to Mid-South Atlantic regions (Georgia, Maryland, New Jersey, Ohio, South Carolina, West Virginia, and Florida). These states use Multi-state agreements.



The third group (Group III) consists of four Pacific and Mountain states (California, Nevada, New Mexico, Washington).

Comparison of User Tax Structures Across the States

As mentioned earlier, it is important to consider the total package of user taxes (first, second and third structure) as well as property taxes when making comparisons across states. Table 23 summarizes the tax structures of the 48 contiguous states under two major groupings: IRP and non-IRP states. This has been done to elicit possible similarities and differences within and between these two groups.

From these table, the following observations can be drawn:

- (i) Tax Structure Type I: Indiana has a tax structure common to 26 of the 48 states -- a diesel fuel tax, a property tax, no major third structure tax and a registration fee. This tax structure is particularly common among non-IRP states.
- (ii) Tax Structure Type II: The other most common structure is no property tax usually coupled with either a higher registration fee or diesel fuel tax.
- (iii) Nine states have some form of third structure tax.
- (iv) Four states have no diesel fuel tax.
- (v) Six states have very unusual tax structures. Both Arizona and West Virginia have property and third



Table 23. Comparison of Tax Structure for Tractor-Trailer Combinations

IRP States

	State Sales <sup>1</sup> Tax on Motor Fuel	Diesel <sup>2</sup> Tax	Property <sup>3</sup> Tax	Third <sup>4</sup> Structure (major only)	Road-User <sup>5</sup> Taxes (Rank)	Registration <sup>6</sup> Fee	Unusual Structures
Alabama	*		*		m	m	
Arizona			*	Carrier	h	h	*
Arkansas	*		*		m	m	
Colorado			*	Mileage	h	v low	
Idaho		None		Mileage	h	v low	*
Illinois	*				m	h	
Iowa					h	h	
Kansas	*		*		m	h	
Kentucky			*		m	m	
Louisiana					m	m	
Michigan	*				l	m	
Minnesota					m	h	
Mississippi	*		*		m	h	
Missouri			*		m	h	
Montana			*		m	m	
Nebraska			*		m	m	
North Carolina			*		m	m	



Table 23. (Continued)

North Dakota		m	h
Oklahoma		l	m
Oregon	None	Mileage	l v low *
Pennsylvania		h	h
South Dakota		m	h
Tennessee		m	h
Texas		l	m
Utah	*	m	l
Virginia	*	m	m
Wisconsin		h	v high
Wyoming	None	Mileage	l v low *
Total		14	5
28			





Table 23. (Continued)

Non-IRP States

Group	State	State Sales Tax on Motor Fuel	Diesel Property Tax	Third Structure (major only)	Road-User Taxes (Rank)	Registration Fee	Unusual Structures
I	Connecticut		*		m	m	
	Delaware				1	1	
	Maine		*		m	m	
	Massachusetts		*		m	m	
	New Hampshire		*		m	m	
	New York	*		Mileage	h	m	
	Rhode Island		h		m	1	
	Vermont		None		m	v high	*
II	Florida				1	1	
	Georgia		*		1	m	
	Indiana		*		m	m	
	Maryland				1	1	
	Ohio			Mileage	h	m	
	South Carolina		*		m	m	
	West Virginia		*	Carrier	h	m	*
	New Jersey				1	m	



Table 23. (Continued)

111	California	*	*	m	h
	Nevada	*		m	v low
	New Mexico			m	v low
	Washington	*		m	m
Total	20	12	4		

## Notes

1. States that have some form of add-on sales tax on motor fuel are shown with \*
2. All states have diesel fuel tax except where shown.
3. \* indicates state has property tax.
4. "Carrier" means motor carrier taxes or fees over \$1,000. "Mileage" means mileage, axle-mile, ton-mile taxes over \$1,000.
5. This is an indication of road user tax level for intrastate operations. Total road user taxes for a in-state vehicle are ranked. "h" refers to 10 states with highest total road-user taxes, "l" refers to 10 states with lowest, and "m" is remaining 38 states.
6. Example for a 78,000 lb. tractor-trailer: "l" is less than \$500, "m" is \$500 to \$1,000 and "h" is greater than \$1,000.

Source: Federal Highway Administration, Road User and Property Taxes, 1982 and Highway Statistics, 1982.



structure (motor carrier type) coupled with moderate-to-high registration fees. Idaho and Oregon are another pair with unusual structures. Neither have a diesel fuel tax or a property tax. Both have an extremely high third structure (mileage) tax and a very low registration fee. Wyoming is similar to Idaho except that its mileage tax is much lower and a property tax is included. Overall this allows Wyoming still to have an attractive total road-user tax for intrastate operators. Vermont also has no diesel fuel tax. In fact it is the only state to base its total road use tax solely on a single registration fee.

In Tables 24 through 27 Indiana's truck tax structure is compared with two groups of states: first tier competition (Illinois, Michigan, Ohio and Wisconsin) and second tier competition (Iowa, Kentucky, Minnesota, Missouri, Pennsylvania, Tennessee, West Virginia). The comparisons are made on four different truck classes by weight and type on the basis of the data as of January 1, 1982 from the FHWA publication, "Road User and Property Taxes on Selected Motor Vehicles" [9]. In each case, the intrastate truck operation only has been considered.

The last two columns of these Tables compare a state's overall rank (lowest taxes is 1) based on total road-user taxes and total road-user taxes plus property taxes. For each vehicle



Table 24  
State Road-User and Personal-Property Taxes on a Gasoline-Powered, Three-Axle  
Tractor-Semitrailer Combination, 40,000 Pounds Gross Vehicle Weight  
(Intrastate, Contract Carrier, Annual 40,000 Miles)

	Property Tax	Registration Fee	Other Taxes and Fees	Carrier Taxes and Fees	Mileage or Ton- Mile Tax	Fuel Tax	Total Road- User Taxes	Total Fees and Taxes	Rank of Total Road User Taxes	Rank of Total Fees and Taxes
Indiana	342 00	390 50			...	837.72	1,228 22	1,570.22	2	7
Low Tier COMPETITION										
Illinois	342.00	1 20	19 00		...	566.03	1,428.23	1,428.23	5	3
Michigan	420 00	1 00	60 00		...	830.17	1,351.17	1,351.17	3	2
Ohio	350 00	...	30 00	400 00	...	777.34	1,557.34	1,557.34	8	6
Wisconsin	428 00	...	80 00	...	...	981.11	1,689 11	1,689.11	10	9
and Low COMPETITION										
Iowa	685 00	495 50	...	10 00	...	981.11	1,676 11	1,676.11	9	8
Kentucky	275 00	500 00	...	50 00	...	932.05	1,427.55	1,702.55	4	10
Minnesota	...	308 00	1 00	25 00	...	981.11	1,531.11	1,531.11	7	5
Missouri	225 48	465 00	4 00	279 52	...	528.29	862.29	1,087.97	1	1
Pennsylvania	...	750 75	...	27 50	...	1,120 72	1,869 24	1,869.24	11	11
Tennessee	...	318 50	3 00	1,265 05	...	679.23	1,457.48	1,457.48	6	4
Virginia	271 53	...	...	...	...	792.44	2,378.99	2,650.52	12	12

Rank 1 is lowest total

Source: Federal Highway Administration,  
Road User and Property Taxes on Selected Vehicles,  
1962, U S Government Printing Office





Table 25  
State Road-User and Personal-Property Taxes on a Diesel-Powered, Four-Axle  
Tractor-Semitrailer Combination, 60,000 Pounds Gross Vehicle Weight  
(Intrastate, Contract Carrier, Annual 60,000)

	Property Tax	Registration Fee	Other Taxes and Fees	Carrier Taxes and Fees	Mileage or Ton- Mile Tax	Fuel Tax	Total Road- User Taxes	Total Fees and Taxes	Rank of State* Total Road User Taxes	Total Fees and Taxes
Alabama	480.32	515.25				1,148.30	1,663.55	2,143.87	3	4
1st tier competition										
Illinois		1,296.00	1.20	19.00		775.87	2,092.07	2,092.07	5	3
Michigan		663.00	93.00	60.00		517.25	1,333.25	1,333.25	1	1
Ohio		496.00		30.00	900.00	1,065.54	2,491.54	2,491.54	10	10
Wisconsin		921.00		80.00		1,344.85	2,345.85	2,345.85	9	9
2nd tier competition										
Iowa		1,210.00		10.00					11	11
Kentucky	357.50	609.50				1,277.61	1,887.11	2,244.61	4	6
Minnesota		848.00		50.00		1,344.85	2,242.85	2,242.85	6	5
Missouri	223.13	608.00	1.00	25.00		724.15	1,358.15	1,581.28	2	2
Pennsylvania		593.00	4.00	82.76		1,536.23	2,315.99	2,315.99	8	8
Tennessee		975.75		27.50		1,241.40	2,244.65	2,244.65	7	7
Virginia	378.71	518.50	3.00	3,245.00		1,085.23	4,853.53	5,232.24	12	12

\*Rank 1 is lowest total

Source: Federal Highway Administration,  
Road User and Property Taxes on Selected Vehicles,  
1952, U.S. Government Printing Office



Table 26

State Road and Personal-Property Taxes on a Diesel-Powered, Five-Axle Tractor-Semitrailer Combination, 70,000 Pounds Gross Vehicle Weight (Intrastate, Contract Carrier, Annual 70,000 Miles)

	Property Tax	Registration Fee	Other Taxes and Fees	Carrier Taxes and Fees	Mileage or Ton-Mile Tax	Fuel Tax	Total Road-User Taxes	Total Fees and Taxes	Rank of State*
Indiana	676.46	790.25	...	...	...	1,618.71	2,408.96	3,085.42	2 3
1st TIER COMPETITION									
Illinois		865.00	93.00	60.00	...	729.15	1,747.15	1,747.15	1 1
Michigan		673.50	...	30.00	1,400.00	1,502.05	3,605.55	3,605.55	7 7
Wisconsin		1,705.00	...	80.00	...	1,895.79	3,680.79	3,680.79	8 9
2nd TIER COMPETITION									
Iowa		1,660.00	...	10.00	...	1,968.71	3,638.71	3,638.71	9 8
Kentucky	451.00	861.50	...	...	...	1,801.00	2,662.50	3,113.50	3 4
Minnesota		1,272.00	...	50.00	...	1,895.79	3,217.79	3,217.79	5 5
Missouri		...	...	...	...	...	...	...	...
Pennsylvania		1,116.00	4.00	106.16	...	2,165.57	3,421.73	3,421.73	6 6
Tennessee		1,300.75	...	27.50	...	1,749.96	3,078.21	3,078.21	3 2
W. Virginia	450.17	698.50	3.00	4,960.03	...	1,531.22	7,195.75	7,645.92	10 10

\*Rank 1 is lowest total

Source: Federal Highway Administration, Road User and Property Taxes on Selected Vehicles, 1982, U.S. Government Printing Office.



Table 27

State Road-User and Personal-Property Taxes on a Diesel-Powered, Five-Axle  
Truck and Full Trailer Combination, 80,000 Pounds Gross Vehicle Weight  
(Intrastate, Contract Carrier, Annual 80,000 Miles)

	Property Tax	Registration Fee	Other Carrier Taxes and Fees	Mileage and or lon- Mile Tax	Fuel Tax	Total Road- User Taxes	Total Fees and Taxes	Rank of State*
ARKANSAS	1,009.07	734.75	93.00	60.00	1,889.33	2,624.08	3,629.15	2
1st tier								
COMPETITION								
ILLINOIS		845.00	93.00	60.00	851.05	1,869.05	1,869.05	1
Michigan		614.85		30.00	1,753.16	4,398.01	4,398.01	8
Ohio		1,210.00		80.00	2,212.73	3,502.73	3,502.73	5
Wisconsin								
2nd tier								
COMPETITION								
Iowa		1,705.00		10.00	2,297.84	4,012.84	4,012.84	7
Kentucky	600.00	861.50			2,102.09	2,963.59	3,623.59	3
Minnesota		667.00		129.00	2,212.73	3,004.73	3,004.73	4
Missouri								
Pennsylvania		1,152.00	4.00	136.16	2,527.62	3,819.78	3,819.78	6
Tennessee								
Virginia								

\*Rank 1 is lowest total

Source: Federal Highway Administration,  
Road User and Property Taxes on Selected Vehicles,  
1982, U.S. Government Printing Office



class, Indiana's rank drops when property taxes are included. Since none of the first tier states impose property taxes, their relative position by rank improves when property taxes are taken into account. Illinois and Michigan rank particularly strong.

Indiana's ranking based on user taxes plus property taxes is generally comparable with the high tax in the second tier. For the lighter weight vehicles, Minnesota, Missouri and Tennessee rank considerably better than Indiana. For the heavier weight trucks, Indiana ranks close to Kentucky, Minnesota and Tennessee.

If Indiana registration fees are increased without any reduction in property tax or any other reliefs, and if it is assumed the taxes of other states have not changed during the last year, Indiana's ranking among the neighboring states would drop, as shown in Table 28. However, the relative ranking of Indiana does not change significantly with a registration fee increase of 25%. It should be pointed out that the data used for this comparison are as of January, 1982, and there may have been significant increases in taxes for some of the states. Consequently, Indiana's tax level may be lower than what is indicated in these Tables.

#### Impact of Registration on the Cost of Doing Business

In view of the above discussion, the results obtained from our questionnaire survey regarding the perceived impact of an effective increase in registration fees on trucking industry can be relevant.





Table 28. Rank of Indiana Among the States Considered\* Under Various Registration Fee Levels

Registration Fee	40K Tractor-Semi-trailer		60K Tractor- Semi-trailer		78K Tractor-Semi-trailer		80K Truck-Trailer	
	Total Road Use Taxes	Total Fees and Taxes	Total Road Use Taxes	Total Fees and Taxes	Total Road Use Taxes	Total Fees and Taxes	Total Road Use Taxes	Total Fees and Taxes
Base Level	2	7	3	4	2	3	2	5
25% Increase	2	7	3	7	2	5	2	5
35% Increase	3	10	3	8	3	6	2	6
50% Increase	3	10	4	8	3	6	3	6

Note: Rank 1 is lowest total.

\* The states include Indiana, Illinois, Michigan, Ohio, Wisconsin, Iowa, Kentucky, Minnesota, Missouri, Pennsylvania, Tennessee, and West Virginia



Operating taxes and licenses account for about 2 to 3 percent of operating revenues of trucking industry. Since this is a small component, how significant is a change in registration fees on business decisions? While the amount is small, marginally it may be significant since the trucking industry is becoming highly cost competitive under deregulation.

A subjective assessment of the impact of registration fees was obtained from the questionnaire survey and is summarized in Table 29. This shows the percentage response to four alternative business decisions based on five registration fee alternatives. Major shifts in the response patterns can be observed after registration fees increase above 10%; the percentage of possible business closures and relocations to other states increase considerably, while possible expansion of firms decreases considerably. Also worth noting is the fact that if registration cost increased above 10%, the percentage that move to another state remains fairly steady (between 11 and 14.6%). It should be noted that the responses to this question are highly subjective in nature. Furthermore, they represent less than the total sample because of missing information.

#### Summary Impacts on Indiana Based Interstate Carriers

In the following paragraphs are summarized the open remarks and comments made by the respondents with respect to registration fees in general and IRP in particular.



Table 29  
Reported Impact of Registration Costs on  
Trucking Firm Decisions

	<u>Same</u>	Registration Cost:		
		<u>Increase 10%</u>	<u>Increase 10-25%</u>	<u>Increase 25-50%</u>
Phase out of Business	2.6	4.7	16.5	42.1
Move to an- other state	0.5	1.9	11.0	12.3
Remain in IN Same level of operations	56.1	68.0	57.5	35.5
Remain in IN and Expand Business	40.8	25.4	15.0	10.1



Pros

1. IRP would allow Indiana based trucks intrastate operations in other states without another plate.
2. Administratively, the current system of registration is time consuming, wasteful and confusing. IRP would improve efficiency for truckers.
3. One Step Closer to a National System - Why not start programs to provide motor truck transportation program where all state regulations are same, all permit fees are same, or have one fee charged for year to operate in all states? Proceeds divided by Federal government and distributed to the states.
4. IRP Avoids Retaliatory Action - It would be a great achievement if Indiana trucks did not have to pay reciprocity permits when picking up and delivering equipment in Kentucky. This cost runs about \$45.00 each trip and costs construction companies a great deal of time and money.
5. Increases Simplicity and Minimizes Contradictions - Indiana State Police permits our competitors from Illinois - yet the Illinois State Police will not permit Indiana Truckers to load out of an Illinois plant. Very unfair.
6. Overcomes Indefinite Situs Tax Issue - The Inde-





finite Situs Tax causes our firm a great deal of concern, and could create thoughts among our management that our terminal should be relocated.

### Cons

1. Increased Tax Liability - If Indiana joins without rearrangement in tax structure, resident interstate truckers will invariably incur greater registration fee liability, because the registration fee in most surrounding states is higher than in Indiana and because the property tax cannot be distributed.
2. Out-of-State Base-Plated Trucks - Can remain better off, even with high mileage in Indiana.
3. IRP will allow more out-of-state carriers to compete with intrastate carriers within Indiana.

### Carrier's Preferences on Interstate Compacts

In the questionnaire survey, Indiana based carriers were asked to indicate their preference between free reciprocity (such as under the Multistate Agreement), proration and IRP. About 75% indicated free reciprocity, 2% proration, 13% IRP, and 10% had no response.

Overall, carriers in all groups, except group 1, showed a strong preference for free reciprocity. A majority of carriers in



group 1, however, preferred IRP. Proration had little support. This might be due in part to Indiana based firms not being familiar with proration.

Preference for free reciprocity over IRP is strongest among those with smaller fleets. This is understandable. Those large firms who operate interstate and intrastate nationally would prefer the convenience, efficiency and reduced cost of IRP. On the other hand, small firms who operate within Indiana or in one or two neighboring states would usually prefer the low Indiana registration fees offered under free reciprocity.

#### Possible Options for Indiana

On the basis of the results of the fiscal impact analysis and subsequent discussion on tax structure and Indiana trucking industry, the following options for Indiana can be considered.

<u>Option</u>	<u>Probable Winners and Losers</u>
1. Do Nothing	May cause continued loss of employment and economic growth in Indiana's trucking and warehousing. Shortfalls in highway revenue. Large firms may move to nearby IRP jurisdictions such as Michigan (and Ohio if they do join IRP) to take advantage of apportioning of fees without affecting movement flexibility.
2. Join IRP, leave tax structure and rates alone	Increased revenues from out-of-state carriers. Will increase financial burden to Indiana based carriers somewhat. May encourage retention of some large carriers and discourage other moderate sized ones. Net increase in revenue may be up to \$2.7 million.
3. Join IRP, raise	Increased revenues from out of state



registration fee

traffic so as to more closely match fees with use by these carriers. Somewhat increased tax burden on resident truckers both intrastate and interstate.

The bottom line for Indiana is that it must capture fees from out-of-state carriers more closely representative of highway use. It can do this by raising registration fees and joining IRP. It should also seek to sustain and further the trucking and warehousing industry in Indiana. This may be achieved in part by revamping Indiana's property taxes on plant, machinery and inventories.



## CHAPTER 4

### CONCLUSIONS

On the basis of the study a set of conclusions can be drawn regarding Indiana's entry in the International Registration Plan, Indiana's trucking industry as well as Indiana truck registration and other fees. The major conclusions are discussed below.

#### General

The present system of state highway reciprocity is complex and burdensome. There are troubling inconsistencies between the permitting practices of Indiana and its neighboring reciprocity states.

Indiana has a comparative advantage as a place for growth in trucking and warehousing. Indiana's tax structure, however, tends to dull its comparative geographical advantage for trucking and warehousing. Both industries are hurt by a sizeable business personal property tax.

#### Fiscal Impact of IRP

If current fees are maintained, participation in the IRP would result in up to \$2.695 million gain in revenue if base miles are computed with Indiana miles plus non-IRP miles (Base-Mile Ratio 1). However, if the mileage ratios include only Indiana miles over total miles (Base-Mile Ratio 2), a revenue loss of up to \$1.723 million can be expected.





A 25% increase in Indiana registration fees for all power units of 26,000 lb. or more weight will provide additional revenue of between \$8.469 and \$9.092 million. In case Indiana joins IRP and the registration fees are raised by 25%, the expected additional revenue on the basis of Base-Mile Ratio 1 will be between \$11.234 and \$12.460 million, and this range for Base-Mile Ratio 2 will be \$6.315 and \$7.427 million. Any additional increase in registration fees will result in a proportional increase in additional revenues.

Indiana's participation in IRP under any level of registration fee will add to the cost of registration for Indiana based truckers. If the registration fee is increased by 25% or more, it is more beneficial for resident carriers for Indiana to participate in the IRP, provided the base mile ratio computations include only Indiana miles.

An increase in registration fee will affect Indiana's ranking relative to other midwestern states with respect to total fees and taxes. However, if the increase is 25% or less, Indiana's competitive standing will not be affected to any considerable extent. Any change in truck registration fees may trigger realignments in the resident trucking industry and some shift and relocation of individual firms may be expected.

#### IRP Entry

Any deliberation to join IRP should include concurrent considerations for changes in Indiana's taxing structure and rates:



1. Does Indiana plan to continue with its present tax structure? If so, the advantages of IRP with respect to revenue gain may be minimal.
2. Will Indiana consider changes in tax rates in conjunction with IRP entry, e.g., increased registration fees? If so, IRP entry would be made more advantageous.
3. Will non-IRP miles be included in Indiana's base mile calculation (Base-Mile Ratio 1)? If so, Illinois will remain competitive over Indiana as a place to do trucking business.
4. In addition to revenue impact, IRP participation has several other effects. First, with IRP the productivity of trucking industry may increase, because the trucking firms would no longer have to register separately in member states for either interstate or intrastate operations. Indiana trucking firms would also benefit through increased flexibility of routing and scheduling. Furthermore, the IRP will make the enforcement of trucking laws much easier.
5. If Indiana registration fees were raised by about 25% for trucks of 26,000 lb. or more weight, the resulting increase in revenue to Indiana together with the other factors noted in item 4 above would appear to make the joining of IRP a desirable option. Under this condition, consideration should be given to include only Indiana miles in base mile ratio computation. This may provide financial relief to Indiana truckers and retain Indiana's competitiveness with nearby states.



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## STATE - INDIANA



INDIANAPOLIS, 46204

July 15, 1983

Greetings:

As you may be aware, from time to time each state reviews its motor vehicle reciprocity agreements. These agreements allow trucks registered in one state to travel through other states. It seems Indiana's turn has come around again. The Indiana General Assembly has required that an independent review be made of our reciprocity agreements.

The Joint Highway Research Project in the School of Civil Engineering at Purdue University is a nationally recognized center of transportation studies. It is conducting a study for us that will review the reciprocity agreements. For this reason we are asking for your help by completing the enclosed questionnaire. We want to be sure to capture the views and obtain direct input from the trucking industry.

The study is an "impact" study. We want to look at the impact of existing and proposed reciprocity agreements on Indiana's revenue, on job opportunities in Indiana's trucking industry and on individual trucking firms and operators. This study involves only license fees and does not include fuel tax or any other regulatory fees. The time you will take in replying to this questionnaire will give us first hand information which will be invaluable in giving an appreciation of how the trucking industry operates. Let us emphasize, we want to learn the impact on you.

All responses will be treated anonymously. The researchers will be pleased to send you a copy of the final report if you desire. It is due in October.

Please return the questionnaire as soon as possible, but before August 15, 1983 using the enclosed stamped envelope. If you have any questions, please feel free to call Professor K.C. Sinha of Purdue University at (317) 494-2211.

Sincerely yours,

Joy L. Pothrock,  
Reciprocity Commission Chairman

Gene K. Hallock,  
Director, Ind. Dept. of Highways

Michael Packard,  
Commissioner of Motor Vehicles



INDIANA STATE HIGHWAY RECIPROCITY STUDY

THESE QUESTIONS ADDRESS YOUR INDIANA-REGISTERED COMMERCIAL VEHICLES WITH GROSS WEIGHTS OF 16,000 POUNDS AND OVER.

PLEASE ANSWER THE FOLLOWING QUESTIONS AND RETURN THIS QUESTIONNAIRE IN THE ENVELOPE PROVIDED.

1. Please indicate your type of operation:

\_\_\_\_\_ PRIVATE  
\_\_\_\_\_ RENTAL  
\_\_\_\_\_ FOR HIRE

2. How many power units do you have licensed in Indiana with gross weights of 16,000 pounds and over? \_\_\_\_\_

3. If all of the above vehicles traveled ONLY in Indiana in 1982, check here \_\_\_\_\_, skip questions 4 and 5, go to question 6. If any traveled outside of Indiana, please go to question 4a.

4a. Complete the following information only for those Indiana-licensed vehicles that in addition to traveling in Indiana have occasion to travel in other states: (Please list only those registered in your name, do not list any which you lease from another firm if they are responsible for the registration.)

WEIGHT GROUP	NUMBER OF INDIANA LICENSED TRUCKS	NUMBER OF INDIANA LICENSED TRACTORS
16,000	_____	_____
20,000	_____	_____
26,000	_____	_____
30,000	_____	_____
36,000	_____	_____
42,000	_____	_____
48,000	_____	_____
54,000	_____	_____
60,000	_____	_____
66,000	_____	_____
72,000	_____	_____
74,000	_____	_____
76,000	_____	_____
78,000	_____	_____
over 78,000	_____	_____

4b. Please indicate how many Indiana-licensed trailers of 16,000 pounds or over you have that travel both in and out-of-state. \_\_\_\_\_

4c. Please indicate how many Indiana-licensed semi-trailers you have that travel both in and out-of-state. \_\_\_\_\_

PLEASE CONTINUE WITH QUESTIONNAIRE ON REVERSE SIDE



5. For the Indiana licensed vehicles described in question 4a indicate the overall miles traveled by all the vehicles in each jurisdiction and total miles traveled during 1982. If exact information is not readily available, please estimate and show an (E) after your entries.

JURISDICTION	MILEAGE	JURISDICTION	MILEAGE	JURISDICTION	MILEAGE
ALABAMA		MANITOBA		OHIO	
ALASKA		MARYLAND		OKLAHOMA	
ALBERTA		MASSACHUSETTS		ONTARIO	
ARIZONA		MEXICO		OREGON	
ARKANSAS		MICHIGAN		PENNSYLVANIA	
BRIT. COL.		MINNESOTA		PRINCE ED. IS.	
CALIFORNIA		MISSISSIPPI		QUEBEC	
COLORADO		MISSOURI		RHODE ISLAND	
CONNECTICUT		MONTANA		SASKATCHEWAN	
DELAWARE		NEBRASKA		SOUTH CAROLINA	
DIST. COL.		NEVADA		SOUTH DAKOTA	
FLORIDA		NEWFOUNDLAND		TENNESSEE	
GEORGIA		NEW BRUNSWICK		TEXAS	
IDAHO		NEW HAMPSHIRE		UTAH	
ILLINOIS		NEW JERSEY		VERMONT	
INDIANA		NEW MEXICO		VIRGINIA	
IOWA		NEW YORK		WASHINGTON	
KANSAS		NORTH CAROLINA		WEST VA.	
KENTUCKY		NORTH DAKOTA		WISCONSIN	
LOUISIANA		NORTHWEST TERR.		WYOMING	
MAINE		NOVA SCOTIA		TOTAL MILES	

6. If the cost of doing business was altered by any new interstate reciprocity agreements, how would this affect your firm's plans over the next five years? Please indicate appropriate response under each column with an (X).

	Registration costs remain the same	Registration costs increase by			
		less than 10%	10-25%	25-50%	over 50%
a. Phase out business					
b. Move to another state					
c. Remain in Indiana and keep same level of operations					
d. Remain in Indiana and expand business					

PLEASE CONTINUE WITH QUESTIONNAIRE ON NEXT PAGE



7. In general, what registration reciprocity agreements do you favor for Indiana? (Please circle one)
  1. Free reciprocity--the present system
  2. Registration proration
  3. International registration plan
8. Open comments. Please feel free to comment on the advantages and disadvantages of an Indiana based trucking firm. We welcome any suggestions for making Indiana a better place to locate and expand trucking businesses.
9. If you would like a copy of the final report, due in October 1983, please include name and address here.
10. Please return the completed questionnaire by August 15, 1983 to:  
K.C. Sinha  
School of Civil Engineering  
Purdue University  
West Lafayette, Indiana 47907 (Telephone: 317-494-2211)

THANK YOU FOR YOUR COOPERATION

KCS:rw





# PURDUE UNIVERSITY

JOINT HIGHWAY RESEARCH PROJECT

Indiana Department of Highways  
and  
Purdue University

August 25, 1983

Greetings:

About three weeks ago you were sent a questionnaire seeking information about your commercial vehicles. As of today, we have not yet received your response.

The State of Indiana has undertaken this study because of the belief that the views and experiences of Indiana carriers should be taken into account in the consideration of future motor truck registration systems.

We are writing to you again because of the importance each questionnaire has to the usefulness of the study. Your company was drawn through a scientific sampling process in which every carrier had an equal chance of being selected. In order for the results of this study to be representative of all carriers, it is essential that each carrier in the sample return the questionnaire.

The results of this survey are of particular importance to motor carrier industry and the Indiana State Legislature now considering what types of road usage policies should be encouraged (and for that matter discouraged) so to meet best the needs of carriers like yourself.

In the event that your questionnaire has been misplaced, a replacement is enclosed. If you have any questions, please feel free to contact me at 317-494-2211.

Your cooperation is greatly appreciated.

Sincerely yours,



K.C. Sinha  
Research Engineer

KCS/bjm

Enclosure



Civil Engineering Building  
West Lafayette, Indiana 47907



APPENDIX C

A COMPILATION OF OPEN COMMENTS FROM INDIANA CARRIERS

In this Appendix, the open comments and suggestions provided by the respondents of our questionnaire survey are grouped by topic. The comments are identified by carrier group of the respondents.

National Uniformity and Common Sense:

It is easier to drive a car into a foreign country such as Canada or Mexico than it is to drive a truck into another state.

Group 5

Indiana needs to become an advocate of all states cooperating and uniformity of regulations. We cannot afford to get caught in a war of taxation between other states and Indiana.

Group 2

This is all one country and why should we have paperwork and additional expense every time we cross a state line.

Group 6

All any trucker wants is to avoid double payment and the ability to operate inter and intra-



state without a complicated system of fees and permits.

Group 7

Why don't we get out of this "slush-fund" racket. Let's make one license good for everyone, everywhere.

Group 4

Most states are busy destroying interstate commerce by building barriers of either pricing or regulation...Indiana should not join this barrier building.

Group 4

Indiana as a Place to do Business:

As long as Indiana can control and administer the unemployment laws and workers compensation laws which are fair to all concerned, it will be a favorable state to locate within.

Group 4

Indiana has been fair in its treatment towards trucking companies. With the present economy, states must compete for new business and remain competitive for existing business. This should be kept in mind when considering changes.



Group 2

At the present time Indiana is at a great advantage for attracting this type of business compared to other states. However, trucks based in Indiana must still pay reciprocity to states like Illinois in order to operate on their roads.

Group 4

Pro/Con IRP

Indiana has been a "free" state too long...Our Indefinite Situs Tax will be deflated and is a drop in the bucket to what other states are doing to our registered units.

Group 3

We need a affordable IRP.

Group 3

The base plates have remained relatively low to our advantage. Let's keep it that way.

Group 3

Proration takes more paperwork than IRP. This is my reason for selecting IRP, one filing with your base state.





Group 4

The next step (beyond IRP) would be to incorporate each state's fuel tax structure under one broad organization.

Group 4

I see the IRP as advantageous to both the industry and to Indiana's revenue increasing, contingent on the State Board of Tax Commissioners and Indiana's Legislature keeping an even keel and not adding additional taxes to out-of-state carriers (i.e., Indiana's Indefinite Situs Property Tax law).

Group 1

I foresee any changes to another system such as IRP or a prorate as a definite increase in license fees.

Group 3

Indiana has always been a leader in reciprocity for trucks in interstate commerce and keep it that way, it is the way to go.

Group 2

Administrative Burden and Paperwork:

Some of the time we have to get 3 permits for



1 day's work for 1 truck.

Group 6

The interstate trucking business is needlessly overburdened with each state developing a unique complicated method to collect their fair share of revenues. A nation-wide uniform all state method of license fee, property tax and road use tax system needs to be developed to simplify costly and inequitable paperwork and collection of revenues.

Group 7

We are not opposed to paying our fair share. However, all of the permits, taxes, etc. are extremely cumbersome for a small fleet.

Group 3

Concerns of Particular Sectors of the Indiana Trucking Industry:

Fiscal costs or taxes (e.g., registration) hurt us because we put limited mileage on our vehicles.

Group 6

We would like to see some arrangement made for our type of operation (off the road a lot) on a mileage basis by a hubmeter set up.



Group 5

There is far too much paperwork for a private hauler such as us.

Group 7

The present system is primarily an advantage for companies operating in the East.

Group 3

Problems with Particular States:

Since we are located on the state line a large portion of our business is in Kentucky. Without some sort of reciprocal agreement we have to license trucks in both states, which means we are also into a dual taxation problem.

Group 4

If Indiana could get a better way of registering in California.

Group 3

Illinois trucks should pay more to come to Indiana.

Group 4

Suggestions:

Ease permitting requirements with Ohio, Illinois, Kentucky.



Group 4

Indefinite Situs is a mistake.

Group 4

Discount License fees for resident carriers.

Group 7

It is very difficult to expand intrastate operations in Indiana....I'm not for deregulation, but this extreme delay would make one wonder if there could be some type of change or improvement.

Group 4

Because of our long distance hauls, it is necessary to exchange trailers with our various (out-of-state) divisions. This means that our (Indiana) based fleet may have (on occasion) some trailers licensed in anyone of the 12 various states.

I understand that the law prohibits us from making deliveries to our Indiana stores serviced from our (Indiana) Distribution Center or trailers licensed in those states.

It seems to me, that if we purchase III Indiana plates for III trailers... what difference should it make what state license plate is on way of the III trailers that we use?

Group 2







COVER DESIGN BY ALDO GIORGINI